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Costs of marginal and retirement programs

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CENTER FOR AGRICULTURAL AND ECONOMIC DEVELOPMENT
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COSTS OF MARGINAL LAND RETIREMENT PROGRAMS

Comparisons of Simulated Land Rental, Present Supply Control, and Land Purchase Programs

by

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SUMMARY

This study is aimed at estimating the magnitude of direct government payments required for retiring excess cropland under various supply control programs which maximize efficiency of crop production and land use in 1965 for the United States. Costs are estimated for eight simulated farm programs. Six of these farm programs are derived from an interregional linear programming model which minimizes crop production costs for a given level of total output. The remaining two programs are alterations of two programming solutions. After costs for each of the simulated programs are computed, costs for each program are compared with costs of supply control programs between 1961 and 1964. After these comparisons are completed, costs are calculated for purchasing the unused land indicated under each simulated program. Land purchase costs are then compared with the costs of simulated farm programs and costs of 1961-64 supply control programs. Finally, costs are estimated for insuring a positive-sum gain for non-farm persons involved in adjustments under more efficient land use programs.

Land retirement, or supply control programs, are simulated by employing regional acreage quotas for the crops considered. The "benchmark" program restrained production of crops to historical base acreages. Other programs reduced the production of wheat and feed grains below the base acreages. One simulated farm program depicted a quasi-free market situation in agriculture.

Surplus production is eliminated in each of the simulated farm programs since production is limited to a given level of demand to achieve a set of target prices. The surplus capacity under each program is indicated by acres of unused crop land. All unused land is retired by compensating farmers with an amount equal to their expected income over variable costs. The summation of all regional land diversion payments equals the total cost required to employ the relevant program.

The geographic pattern of the unused cropland has an effect on estimated program costs. However, land in certain areas is retired by all programs; hence, several of the programs have similar total costs. Regions in southeastern states, eastern Kansas, and the Dakotas are repeatedly designated as surplus land areas.

The number of acres retired and the estimated costs of each program is presented in the Summary Table. The righthand column indicates the efficiency of the program relative to the benchmark program. Efficiency is measured by the gross value of crops reduced per dollar of government cost. The benchmark program is given the value of 100. Programs with an efficiency greater than 100 tend to be most efficient.

Summary Table. Estimated government costs of retiring cropland not needed for production by program

Simulated Program	Total acres retired	Average cost per acre	Total government costs	Value of crops per dollar cost	Efficiency index
	(mil. acres)	(dollars	(mil. dollars)	(dollars)	
Benchmark	40.5	29.97	1,214.0	2.02	100
Unlimited wheat	38.2	28.25	1,080.1	1.82	90
10% Wheat diversion	40.6	30.13	1,222.2	1.99	98
Adjusted wheat diversion	40.5	29.96	1,214.4	1.94	96
Unlimited feed grain	47.9	26.80	1,283.7	2.12	105
7.5% feed grain diversion	36.1	32.79	1,183.1	1.98	98
Adjusted feed grain diversion	35.6	34.90	1,242.2	1.81	90
Quasi-free market	47.1	34.20	1.610.1	1.90	94

A total government expenditure of $1.2 billion is required annually for several of the programs considered. The range in total direct payments is from $1.1 billion to $1.6 billion. Estimated costs of simulated programs which allow more efficient patterns of production of wheat, feed grains, soybeans, and cotton are considerably less than present program costs. Savings in annual payments from diverting marginal land in the simulated programs approach or exceed $1 billion. This study also indicates that government program costs are higher if production is reduced on higher quality land and continued or increased on marginal land. Retiring land in the Corn Belt for example, is shown to be more expensive than limiting feed grain production through land diversion in marginal producing areas. The dominant theme repeated in the program cost analysis is that program costs and the pattern of land use are directly related. As acres of land in all regions are diverted, the average quality is higher, hence diversion costs are higher. If only acres in marginal areas are diverted, the average quality is lower and diversion costs are

lower. There is a definite cost advantage in controlling supply by diverting only land in marginal areas of production.

Government purchase of unused cropland is estimated to be the lowest cost method of taking land out of production permanently. The estimated purchase price of unused land in all programs studied, is exceeded by annual diversion payments in approximately seven years using simulated program payment rates. Only four years of annual diversion payments are required for diversion expenditures to equal the purchase cost of the unused land using 1961-64 program payment rates. Over the next ten years, an estimated reduction of $14 billion in program costs can be achieved by substituting a land purchase program for present supply control programs.

Results of this study indicate that a substantial savings in government expenditures for farm programs can be expected if programs employing more efficient patterns of production are employed. The size of the cost differential between present farm programs and the simulated rental and purchase programs of this study, suggests that possibly all families adversely affected by a program requiring more efficient patterns of production can be compensated so that theoretically no one is financially worse off in the short run. However, it is impossible to determine whether a farmer would be better off financially in urban life 20 years after leaving the farm.

Costs to society are important in any farm program, but they are not the only important consideration. Severe hardship might be created by programs which remove whole regions of land from production. The social and economic factors involved may be relatively more important in selecting a farm program than the direct government expense. Results of this study, however, indicate that all persons adversely affected by a program which provides more efficient production patterns could be compensated without increasing present expenditure levels.

INTRODUCTION

After 30 years of production control and price support programs, the farm problem of relatively low income and surplus production remains unsolved. Some phases of government programs for agriculture have resulted in substantial losses. The realized losses of the Commodity Credit Corporation for price support and commodity export programs for the years 1956 through 1959 are estimated at over one billion dollars annually (5, p. 556). Total losses of all CCC programs for the period 1933 to 1960 equaled 8.1 billion dollars.

Although large expenditures have been made in the past, present costs are not decreasing. The proposed USDA budget for 1964 totaled slightly over 6.5 billion dollars. Of this amount, 2.6 billion dollars was directed towards improving farm income (7, p. 13). The remaining 3.9 billion dollars directly benefited the general public. Programs of agricultural research, education, and technical assistance fall in the latter category since they are not necessarily of primary advantage to farmers. The ultimate benefactor of these programs, which stimulates more efficient farm production and lower food prices, is the consumer and the general public.

Many economic lessons have been learned from past experiments with farm programs. No program has solved the problem adequately and it appears that our surplus capacity will cause supply control to be necessary for some years to come, barring some unexpected event.

Beside large expenditures, a side-effect of programs has been the maintenance of historic patterns of production as differential change in technology, population growth and location shifts, irrigation projects, and other factor price changes have altered the comparative advantage of producing regions. In effect, efficiency of agricultural production has not been maximized as crop acreage was held in areas of historic production while newer producing areas gained a comparative advantage in production. As technological change occurred, some areas became marginal with costs of production exceeding returns from the market. Production oftimes remained tied to these areas, however, because of government output control programs.

The purpose of this study is to determine if government expenditures might be reduced under alternative government programs which would eliminate surplus production by retiring unused land on a long term basis and also provide for more efficient patterns of production for wheat, feed grains, soybeans, and cotton. Program costs are not necessarily the most important factor involved when considering farm legislation. Many other goals have been set forth as guide-posts to farm programs. Higher farm income and lower food costs are two other goals. However, holding costs in line with benefits to the nation is one often expressed objective of agricultural policy.

Alternative Approaches to Supply Control

According to J. Carroll Bottum, the retirement of cultivated land in an attempt to control output is an economic consequence of progress in agriculture, and must continue unless we discover additional market outlets other than those in prospects (1, p. 194). He observes that the political phase of the problem is not whether we retire land, but rather what land is to be retired.

There are two approaches which farm policies can follow in attempting to control output through land retirement programs. One is to continue, as past programs have done, to annually retire land from production on a majority of farms throughout the nation. The second approach is to concentrate retirement of cropland in marginal areas of production on a long-run basis.

The latter approach to supply control was used in a recent study of the effects of six simulated government supply control programs on allocation of crop production and land use in 1965 (22). Under the study, a maximum historic acreage was established for each of cour crops: feed grains, wheat, soybeans, and cotton.[1] Land retirement, or supply control programs, were simulated by employing regional acreage quotas to maintain historic production patterns for specific crops. Changing or eliminating the cropland acreage restraints for the various crops, permitted several alternative programs to be studied. The simulated programs and the percentage of base acres allowed for production in each program are shown in table 1.

Under the study, the United States was divided into 144 spatially separate agricultural producing regions.[2] Within each region, total crop production was limited by available cropland. Individual crop restraints were based on the historical acreage of the crop in the region. No minimum regional production for any crop was required; whole regions could be idled from crop production.

Besides acreage restraints on each crop which restricted the change in crop production patterns, total output was limited to a given demand level in each simulated program in order to gain a specific set of target prices. Average commodity prices received by farmers for the years 1959-62 were used as the price targets for 1965. The target prices are shown in table 2.

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[1] The maximum historic acreage was titled base acres. The sum of the base acres for the four crops equaled 223.9 million acres.

[2] For a description of the producing regions, see appendix figure A-1.

Table 1. Percentage of base acreage or total cropland allowed for each crop for each simulated farm program.[a]

Simulated Farm Program	Cotton base	Wheat base	Feed grain base
Benchmark	100	100	100
Unlimited Wheat	100	Unlimited[b]	100
10% Wheat div.	100	90	100
Unlimited F. G.	100	100	Unlimited
7.5% F. G. div.	100	100	92.5
Quasi-free market	200	Unlimited	Unlimited

[a]Soybean production was limited to 40 percent of total cropland in each region where grown.

[b]Production of crop limited only by total available cropland.

Table 2. Derived normal or target prices for crops under all simulated farm programs.

Crop	Unit	Normal or target prices
		-dollars-
Wheat		
(food)	bu.	1.95
(feed)	bu.	1.16
Corn	bu.	1.10
Oats	bu.	.67
Barley	bu.	.95
Grain sorghum	bu.	.96
Soybeans	bu.	2.32
Cotton lint	cwt.	33.87

An interregional competition model was used to simulate the supply control programs. The objective function of the model was to minimize the national costs of crop production and interregional transportation. As a result, each of the simulated supply control programs determined (1) regional shifts in crop production required to minimize total costs of crop production, and (2) the magnitude of unused acres or surplus capacity

remaining after the given level of demand for commodities was filled. In the study, these acreages were specified for each of the 144 regions of the United States; only national totals of cropland use and unused land are shown in table 3. The right column which indicates the unused cropland is of most importance to this study. The acreages are used to calculate the costs of land retirement for each of the simulated farm programs of this study. Adjustments are made on two of the programs so that costs are calculated for a total of eight simulated programs in this study.

Table 3. Utilization of cropland and total unused cropland for each simulated farm programs.

Simulated Program	Wheat	Feed Grains	Soybeans	Cotton	Unused Cropland
			(millions of acres)		
Benchmark	47.0	102.4	19.9	14.1	40.5
Unlimited wheat	73.7	78.0	19.9	14.1	38.2
10% Wheat div.	44.3	105.1	20.0	14.1	40.6
Unlimited F. G.	41.6	99.9	20.4	14.1	47.9
7.5% F. G. div.	53.6	100.6	19.6	14.1	36.1
Quasi-free mkt.	55.0	89.4	20.2	12.3	47.2

Objectives of Study

The first part of this study estimates the costs of alternative government supply control programs which are based on maximizing the efficiency of crop production. A comparison is then made of these costs with costs of past and present programs. Next, long-run purchase of unused cropland is considered as another policy alternative. Lastly, compensation of non-farm persons involved in agricultural adjustment is considered.

The specific objectives of this study are as follows:

1. To estimate government costs of alternative supply control programs under a more efficient allocation of production and land use than presently exists.

2. To compare payments under past government farm programs with estimated payments under programs involving more efficient production patterns.

3. To examine the cost of government purchase of unused cropland under more efficient patterns of production.

4. To explore the cost of compensating people in agriculturally related businesses who suffer adverse effects under farm programs which maximize efficiency of production.

Assumptions

In making this study, certain basic assumptions are made. The specific assumptions for estimating program costs in this study are as follows:

1. Efficient production patterns for agriculture are desired by society and are implemented through government programs.

2. Unused cropland is diverted to non-agricultural uses; no crop production or grazing is permitted on this land.

3. All farmers whose land is designated as not needed for crop production participate in the land retirement program.

4. Government costs to retire land from production are equal to the potential income over variable production costs with a minimum cost per acre based on basic state rental rates of the Conservation Reserve program.

5. Government expenditures are required to reduce the production of any crop below its regional base acreage, and also retire land not under a specific acreage quota.

6. Government expenditures are not required to limit production of wheat, feed grains, soybeans, and cotton to the average acreages grown historically in the region, (i.e., the base acreages).

Some programs in this study involve assumptions of mandatory, as well as voluntary, diversion of land. [1] Compensation for both mandatory and voluntary retirement is assumed. The method of determining compensation for mandatorily retired acres is the same as that for voluntary diversion. Payments are made annually, or until the land is returned to agricultural production.

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[1] The term mandatory applies to programs which reduce crop acreage by a specified amount in each region. By contrast, programs which have unused land after the assumed demand level is filled are termed voluntary since no specific restrictions control production. In the mandatory programs of this study, acreage up to the percentage reduction required is termed mandatory land retirement; acreage retired in excess of this percentage retirement is termed voluntary. Costs of retirement are calculated and compared for both voluntary and mandatory acreage reductions.

Calculation of Program Costs

For this study, the level of payment to farmers taking land out of production is assumed to be equal to the expected or potential income over variable production costs. Expected, or potential refers to income which is received by the producer if the land is left in crop production. For example, the producer retiring land from wheat production receives a payment equal to his previous gross return per acre of wheat minus his per acre variable costs of producing wheat. His gross return is determined by multiplying the per acre yield of wheat, assuming an average yield, by the price of wheat in the region; his variable costs of production, also referred to as operating costs, include expenditures for machinery and power operation, chemicals, hired labor, and miscellaneous inputs. Subtracting variable costs from gross return gives the payment rate per acre of wheat. Program costs are determined by multiplying the net return per acre by the number of acres retired and summing over all crops and all regions.

Other studies of land retirement costs have determined payment rates in a fashion similar to the method of this study. J. Carroll Bottom, et al., used income over variable costs as a basis for retirement payments (2, p. 10). In a study by Paulsen, et al., the cost of retiring an acre of land was estimated to be the difference between gross return and out-of-pocket costs (6, p. 4).

The following data by crop are necessary for each region to determine government program costs: (1) regional unused crop acres, (2) crop yields, (3) regional prices of crops, and (4) production costs of crops. A brief discussion of these four basic elements follows.

Regional unused crop acres

Before programs costs can be calculated, it is necessary to determine the number of unused acres of wheat, feed grain, soybean, and cotton land in each region. A different payment rate is made for each crop and region and thus it is necessary to know the crop previously grown on the unused land.

In the original study (22), total acres of feed grains are specified by region. Since feed grain land is used for corn, oats, barley, and grain sorghum production, it is necessary to determine the acres of each previously grown in each region. For this purpose, regional weighting factors for each crop are used which determined the fraction of the feed grain acreage represented by each crop. The crop weights indicate what portion of the feed grain land is allotted to each crop. For example, a .750 regional weight for corn means that 75 percent of the feed grain acreage is in corn production. The remaining 25 percent of the feed grain land is allocated to oats, barley, and grain sorghum. These weighting factors summed to 1.0 in each region. All four of the feed grain crops are not necessarily grown in each producing region, however. Individual crops have zero weights in some regions.

The weighting factors are used to determine a weighted feed grain diversion payment for each region. This feed grain payment is used for the unused feed grain acreages of each program. It is thus unnecessary to determine the individual corn, oats, barley, and grain sorghum acreages for each program analyzed. Acreages of wheat, soybeans, and cotton are given in the original study (22).

Crop yields

Regional crop yields are developed by weighting projected 1965 state yields by a ratio of regional over state yields. The 1965 projected yields are based on state average yields for the period 1954-62. A linear regression was used to project yields to 1965 by states. The ratios of regional over state yields are based on 1950 to 1960 data. Final regional yields are regional over state average yield times the linearly projected state yield. In other words, the 1965 projected state yields are weighted according to ratio of regional and state average yields for the period 1950-1960. Appendix table A-1 indicates the estimated regional crop yields for 1965.

Regional prices

Regional prices for each commodity are derived from the national average prices shown in table 2. To obtain regional prices for commodities, price differentials between regions are first calculated. These differentials are derived from the 1963 Commodity Credit Corporation county prices for support loan rates (11, 12, 13, 14, 15, 16, 17). The resulting price differentials are applied to the national average commodity prices shown in table 2. No adjustments are made for quality differences. Regional prices for each of the 144 regions are shown in appendix table A-2.

It should be noted that the price of feed wheat is used in this study to calculate the cost of retiring wheat land. The demand for food wheat is assumed to be met before that of feed wheat. With the obvious oversupply of potential food wheat, only wheat used for feed is affected by wheat land retirement. Thus, the real opportunity cost of diverting wheat land is the returns from feed wheat.

Production costs

Production costs for 1965 are estimated on the basis of procedures used by Egbert (4, p. 58) and Whittlesey (22, p. 86). Production costs include expenditures for hired labor, variable costs of machinery and power, chemicals, and miscellaneous inputs. The cost of seed is not included since the estimated quantity of seed required per acre is subtracted from the per acre yield. Machinery and power costs consist of costs for fuel, oil, grease, and repairs. Chemical costs include expenditures for fertilizer, lime, insecticides, fungicides, and

herbicides. The cost of spreading manure, lime, fertilizer, and the cost of water for irrigated acreages constitutes the miscellaneous cost item. No charge for land, overhead, including management, grain storage, purchasing and selling is included in the production costs. Production costs for each region are shown in appendix table A-3.

Using only returns above variable costs for the payment rate, as was done here, means that farmers retiring land have to pay out of their compensation received, all of their fixed costs which are still incurred even though their land is not in production. Such costs include rent for land or payment of taxes, interest on borrowed capital, insurance, and upkeep of buildings and fences. Also, the initial expense of diverting the land to a non-agricultural use and maintaining it in such use must be met from the incentive payments.

Mathematical Description of Payment Rates and Program Costs

The following mathematical description is presented to clarify the exact procedure followed in deriving costs for each simulated government program.

A gross return per acre is first calculated for each crop in each region. In equation form, it is

$$R_{kg} = P_{kg} Y_{kg},$$

where P_{kg} is the expected price of the kth crop in the gth region, Y_{kg} is the yield of the kth crop in the gth region, and R_{kg} is the gross return or value per acre of the kth crop in the gth region.

From the gross return per acre the net return above variable costs is determined using the following equation.

$$N_{kg} = R_{kg} - V_{kg}$$

N_{kg} is net return above variable costs for the kth crop in the gth region. R_{kg} is the gross return and V_{kg} is the variable costs for the kth crop in the gth region. Variable costs consisted of expenses for machinery and power operation, chemicals, hired labor, and miscellaneous inputs.

The next step is to calculate a regional cost of land retirement by crop, specifically

$$C_{kg} = N_{kg} U_{kg},$$

where C_{kg} is land diversion cost of the kth crop in the gth region, U_{kg} is the number of unused acres of the kth crop in the gth region, and N_{kg} is defined above.

The final step is to determine total program costs for all crops and all regions. In equation form,

$$TC = \sum_{g=1}^{144} \sum_{k=1}^{4} C_{kg}$$

where TC is total cost of government payments required to employ the program and C_{kg} is defined as above, K goes from 1 to 4, namely wheat, feed grains, soybeans, and cotton and g goes from 1 to 44, the number of producing regions.

The above procedure is followed for each of the simulated programs considered in this study. After this step is completed, it is possible to compare expenditures required under various farm programs giving the most efficient production pattern allowed by the particular restraints of the program. Regional payment rates per acre are included in appendix table A-4.

Minimum payment rates

The estimated income over variable production costs for certain crops in certain regions are relatively low. Indeed, a negative return exists in some instances. It is assumed in this study that some positive incentive payment to procedures is required to divert the unused land to non-agricultural uses. Thus, it is necessary to set a minimum retirement payment for land in each producing region.

The minimum payment rate selected for retiring land is based on the basic state rental rates per acre of the Conservation Reserve program for 1959. The Conservation Reserve program was similar to the simulated programs of this study; it too was directed at taking land out of crop production for extended periods of time. The basic state rates for the Conservation Reserve programs were set for the farm of average productivity within each state. For farms above the average, the payment rate was set proportionately higher. Farms below average received proportionately lower rates of payment.

Under the simulated programs of this study, the least productive region of any state for any crop is specified for removal by the efficiency criteria used. The rental rates for these regions under the Conservation Reserve program would have been below the basic states rates. The average actual rates paid for land retired by the Conservation Reserve in 1959 equaled 80 percent of the basic rental rates. This 80 percent factor was assumed to be the appropriate factor needed to adjust the 1959 basic state rates to make them applicable as the minimum level of payment for land retired.

To summarize, in this study the minimum payment rate per acre for all regions within a state is assumed to be equal to 80 percent of the basic state rental rate per acre under the 1959 Conservation Reserve program. Minimum regional diversion rates per acre for all crops are shown in appendix table A-5.

Effect of location on costs

The location as well as the amount of unused cropland is important when examining the results of the simulated programs. When land retirement is concentrated in any area, severe effects are felt by the local agri-business sector, and by the labor and capital previously employed in the local agriculture. The location of the retired cropland may also affect the total program cost required to bring about certain patterns of land use and thus eliminate surpluses. Certain capital and labor costs, such as seedbed preparation and planting costs, tend to be approximately equal for the same crop on soils of different productivities. Since these costs represent a smaller portion of the total product on more productive land, a larger return over variable production costs remains, and hence a larger retirement payment is required. As a result, location and productivity of land are important in program costs.

Description of Simulated Farm Programs

A total of eight simulated programs are included in this study. The first simulated program is titled the benchmark. It is used as a basis of cost comparison in this study because it is not directed at any particular crop. Wheat, feed grain, and cotton are limited to 100 percent of their respective regional base acreages. Soybeans are restricted to 40 percent of total regional available cropland.

Under the unlimited wheat program, regional wheat acreage is limited only by total available cropland. Under the mandatory wheat diversion program, regional wheat acreage is reduced ten percent from the historical base acreages. The two alternatives, unlimited wheat production and a program of diverting ten percent of the wheat acreage, have both been used as wheat programs in the past.

The unlimited feed grain program permits feed grain to be grown on all available cropland in all producing regions. The mandatory feed grain diversion program reduces production by 7.5 percent from the historical base acreage in all producing regions. All other conditions of these two feed grain programs are identical to the benchmark solution.

The quasi-free market indicates the amount and pattern of surplus cropland if all institutional restrictions limiting production patterns are removed. National production is limited to meet the demand level, but regional crop production quotas are assumed nonexistent. Regional wheat and feed grain acreages are limited only by the total available cropland. Soybeans and cotton are assumed to be limited by the physical characteristics of the production resources and production methods used. Soybeans are restricted to 40 percent of total cropland and cotton to 200 percent of its base acreage, or to total regional cropland, whichever is smaller.

In an attempt to make the programs as realistic as possible, government costs are recalculated after adjustments are made on the

wheat diversion and the feed grain diversion programs. Under the original mandatory diversion programs, land diverted from wheat and feed grains is permitted to be used for soybean production where economically feasible. The adjustments made on these two programs force diverted wheat and feed grain land to a non-agricultural use and prevent its use for soybean production. These two programs are called the adjusted feed grain diversion and adjusted wheat diversion programs.

The two programs estimate the costs of retiring land when wheat and feed grain land is completely removed from production. In those regions where the diverted land is previously used for soybean production, adjustments are made to idle the land. Adjustments are also made in soybean acreages, so that soybean demand continues to be met.

IMPLICATIONS AND COSTS OF PROGRAMS

Each of the simulated farm programs examined in this cost study indicate surplus acres of cropland when production is limited to meet demand at the target price levels. Total demand requirements are met from current production; no stocks are assumed to exist. Government costs are estimated for employing land retirement programs consistent with efficient production patterns and patterns of unused land. In the short run, patterns of land use or non-use can be initiated by compensatory or incentive payments to farmers. In the long run, continued existence of equilibrium prices (free markets) could be expected to bring about such patterns of land use. To implement efficient patterns of land use in the short run, compensation payments are assumed in this study. Farmers would receive direct incentive payments equal to expected income over variable costs, for taking land out of production. Grazing or forage production is not permitted. Total government program costs are estimated by summing total incentive payments to farmers for retiring land.

Under each simulated program, average costs per acre of retired land gives an indication of the average productivity of the land retired. The relative efficiency of each program is measured by the reduction in value of crops produced per dollar of government cost.

Benchmark Program

The benchmark program allows production of each crop up to the historic acreage previously grown in each region. Production of wheat, feed grains, and cotton can expand to 100 percent of the historical base acreages of each crop. Soybean acreage is restricted to 40 percent of total cropland in each region. This program allows complete reallocation of production among regions; production within each region is restricted by the historic manner in which cropland was employed. Allocation among regions is determined on the basis of lowest cost of production, and takes into account the relative yield of crops, production costs, market location, and transportation costs.

Total output of each crop, as differentiated from the regional allocation of production of each crop, is limited to the demand level consistent with the target prices of table 2. After demand quantities of each crop are filled under the benchmark program, a total of 40.5 million acres, 18 percent of total cropland historically used for these crops, remains unused. Only marginal land is unused; restraints are not applied to cause a given proportion of land in each region to be retired.

A surplus of each type of cropland exists in the benchmark program. Unused wheatland is centered in North Dakota, South Dakota, and eastern Kansas. Additional wheat acres in Ohio and southern Michigan are shifted out of production; 84 percent of all wheatland is

located in these states. Major winter wheat areas maintain production levels due to a comparative advantage over other areas.

Feed grain production under the benchmark program is not significantly different from present patterns of production. In general, Corn Belt acreages are increased by this program because no specific program is assumed for the region. The Southeast United States and the Great Plains have 86 percent of all diverted feed grain land under the benchmark program. North and South Dakota, Montana, Mississippi, South Carolina, and Georgia are the states retiring large acreages of feed grain land.

The Southeast also retires relatively large amounts of soybean land. Arkansas' soybean acreage diversion equals 20 percent of the total soybean diversion. Minnesota also idles significant amounts of soybean land. Soybean land is the only land retired in Minnesota by the benchmark program.

South Carolina, Georgia, Mississippi, and Arizona retire two-thirds of the total unused cotton land designated by the benchmark. Because historical base acreages limit reallocation of production, cotton acreage patterns agree quite closely with present patterns of production.

Table 4 indicates that 8.2, 23.5, 4.5, and 4.3 million acres of wheat, feed grain, soybean, and cotton land, respectively, are diverted

Table 4. Estimated government costs of retiring cropland not needed for production in the benchmark program.

Item	Unit	Wheat	Feed Grain	Soybeans	Cotton	Total[a]
Base acreage	mil. acres	58.5	129.2	17.6	18.6	224.0
Unused acreage	mil. acres	8.2	23.5	4.5	4.3	40.5
Voluntary retirement	mil. acres	8.2	23.5	4.5	4.3	40.5
Government costs	mil. dollars	174.3	507.5	195.8	336.4	1,214.0
Average cost per acre	dollars	21.20	21.61	43.71	77.66	29.97
Reduction in value of crops produced per dollar of government cost	dollars	1.47	2.36	1.47	2.12	2.02

[a]Rounding may cause total to differ from sum of the elements.

from production. Under the assumptions of this study, the cost of diverting 8.2 million acres of wheat land is estimated to be $174.3 million with an average cost of $21.20 per acre. A cost of $570.5 million is necessary to retire 23.5 million acres of feed grain land. Feed grain payments represent a composite of the payments made to divert corn, oats, barley, and grain sorghum. The estimated average cost per acre for feed grain diversion is $21.61. On a per acre basis, soybeans and cotton are more costly crops to divert. Diversion costs averages $43.71 and $77.66 per acre, respectively, for soybeans and cotton. Cotton diversion is estimated to cost $336.4 million. Soybean land is diverted at a cost of $195.8 million.

Government cost in the form of incentive payments to farmers under this program total $1.2 billion. The average cost of retiring the 40.5 million acres not needed for production in attaining the demand quantities and price levels mentioned earlier is $29.97 per acre.

The reduction in value of crops produced per dollar of government payment is $2.02. The United States Department of Agriculture estimated that the reduction in value of crops produced per dollar of rental payment under the Conservation Reserve program in 1960 was $2.80 (18, p. 27). However, this rate applied to fewer acres. The average rate increases as more land is diverted. Bottom et al. estimated that a $2.85 reduction in crop production could be purchased for $1 under a whole farm rental program where plow land, including rotation hay and pasture and idle and fallow cropland, was removed from crop production and coult not be grazed (2, p. 23). Under a second rental program including only soil depleting crops, each dollar purchased $1.80 of production. The difference in these efficiency measures is mainly due to difference in type and number of acres involved and the assumed payment rates per acre. Conservation Reserve rental rates and the rates assumed by Bottom averaged considerably less than the payment rates used in the benchmark program. Had either of these other payment rates been used, this program would have appeared much more efficient. Our analysis supposes that somewhat higher rates are necessary to control output and raise prices to the levels indicated in table 2.

Costs of other simulated programs are now considered in relation to the estimated costs and efficiency factors of the benchmark program.

Wheat Programs

Three programs for wheat are examined here: the unlimited wheat program allows production of wheat on all cropland in each region until total demand is satisfied at the specified price level; the mandatory wheat diversion program reduces wheat acreage ten percent in each region but allows soybean production on the diverted acreage if more profitable than diversion payments; and the adjusted wheat diversion program reduces acreage ten percent in each region and requires non-use of these acres.

Unlimited wheat program

The allocation of wheat production among regions is based solely upon the relative cost of production in this program. No restrictions other than total cropland affect the quantity of wheat produced in any region. In essence, any region may grow only one crop, wheat, if production costs are favorable relative to other crops.

Total production of wheat for all regions is limited by the demand level capable of maintaining the target prices of table 2. However, a two price plan for wheat which prices food wheat at $1.95 per bushel and feed wheat at $1.16 nationally, allows wheat to compete with feed grains in all regions on a cost of production and feeding value basis. In regions where lack of historic base acreage prevented production of wheat in the benchmark program, only an uneconomic cost structure is limiting in this program. Feed grains and cotton production are limited to regional base acreage. Soybeans are again restricted to 40 percent of total cropland. Thus, the only change between the benchmark program and the wheat program under discussion is: under the latter, wheat can be grown on all cropland in the region, it is not limited to base acreages.

Abolishing wheat quotas significantly changes the pattern of land use from the benchmark program. Wheat production increases 26.7 million acres (see table 3), with a large amount substituted for other grains as livestock feed. Wheat acreage increases in most of the Great Plains and western wheat states. Acreages also increase in South Carolina and Georgia where small historic base acreages previously limited production under the benchmark program. In these latter states, wheat grown locally and used for feed is less costly than imported feed grains from other regions.

The large increase in wheat used for feed purposes causes a smaller demand for feed grains. Feed grain acreage decreases are of similar magnitude as the increases in wheat acreage. Most of the decreases in feed grain production are located in the Great Plain states. The program has little affect on the production of soybeans and cotton.

Total cropland required for crop production in the unlimited wheat program increases by 2.3 million acres over the benchmark program. In general, a decrease in cropland use occurs in the Corn Belt while an increase in cropland use occurs in the Great Plains, the West, and states in the Southeast. Large amounts of cropland in South Carolina and Georgia which is unused in the benchmark program produces wheat in this program. Wheat production also increases in parts of North and South Dakota and Nebraska, reducing unused land in these states. The increased use of wheat for feed causes acres of wheat in the Great Plains to substitute for acres of feed grains in the Corn Belt.

More wheat land is retired by the unlimited wheat program, 12.1 million acres, than under the benchmark program even though wheat production increases considerably. Under this program, wheat can be grown on land previously devoted to feed grains, soybean, and

cotton, which is more productive than land ordinarily used for wheat. Wheat production on wheat land decreases and production increases on land previously used for other crops.

Unused land totals 38.2 million acres, 2.3 million acres less than under the benchmark program, indicating less intensive use is made of cropland. The number of unused acres decreases 5.7 percent.

The unlimited wheat program requires a total expenditure of $1.1 billion in diversion payments (table 5), a nine percent decrease from the benchmark program. The quality of the land has an important effect on diversion costs. Average cost per acre of land retired decreases by $1.72 to $28.25. The average productivity of the unused land in this program is evidently lower than unused land in the benchmark program.

Table 5. Estimated government costs of retiring cropland not needed for production in the unlimited wheat program.

Item	Unit	Wheat	Feed Grain	Soybeans	Cotton	Total[a]
Base acreage	mil. acres	58.5	129.2	17.6	18.6	224.0
Unused acreage	mil. acres	12.1	12.1	3.1	1.9	38.2
Voluntary retirement	mil. acres	12.1	21.1	3.1	1.9	38.2
Government costs	mil. dollars	269.7	547.1	142.3	121.0	1,080.1
Average cost per acre	dollars	22.21	25.93	46.47	62.59	28.25
Value of crop production reduced per dollar of government cost	dollars	1.40	1.97	1.38	2.63	1.82

[a]Rounding may cause total to differ from sum of the elements.

The efficiency of this program, as measured by the value of crops reduced per dollar of program cost, is less than the benchmark program. Each dollar of cost would reduce crop production by $1.82. A dollar spent similarly in the benchmark program reduces production by $2.02. The wheat program is thus shown to be 90 percent as efficient as the benchmark program in terms of costs, yet each acre is diverted at a lower average cost. This result appears paradoxical. Efficiency generally increases as average cost per acre decreases.

The apparent inconsistency is due to the composition of the unused land. Unused wheat land increases while unused acres of other crops decline from the benchmark program. Wheat land makes up a considerably larger portion of the total unused land and is diverted at a significantly lower average cost than other cropland; hence, average diversion costs decline.

Efficiency decreases because of several relationships. Fewer acres of feed grain land are retired under this program than in the benchmark program, but average cost per acre rises to $25.93. The increase in average cost is the result of wheat production on some of the most marginal feed grain land in South Carolina and Georgia. The most marginal feed grain land is unused in the benchmark program. The result is higher per acre diversion costs and lower efficiency for feed grain diversion.

Unused soybean land decreases, but average cost is increased to $46.47 per acre because some marginal soybean land is used for wheat production, efficiency decreases accordingly.

Cotton acreage diverted in the unlimited wheat program is less than half that of the benchmark program. This reduction is the result of wheat production occurring on previously unused cotton land. Average cotton diversion costs decline to $62.59 per acre. Cotton is the only crop whose average diversion cost decreases from the benchmark program and thus is diverted more efficiently.

The increased efficiency of cotton land diversion has little effect on the total program efficiency since the cotton diversion is an insignificant portion of the total acreage diversion. About 95 percent of the total diversion consists of wheat, feed grains, and soybean land. The decreased efficiency of diverting these crops causes total program efficiency to be reduced. The lower average cost of diverting these crops, relative to cotton, effectively reduces the average diversion cost of all acres diverted under this unlimited wheat program.

Mandatory wheat diversion program

The mandatory wheat diversion program supposes a reduction in each region of ten percent of the base wheat acreage. The wheat land removed from production by this program can be used for soybean production when economically feasible. Other restrictions on cropland use in this wheat retirement program are identical to the benchmark program.

No drastic change from the benchmark program occurs in the production of wheat, feed grains, soybeans, and cotton under this wheat program. Total wheat production is reduced by 5.8 million acres due to the restriction limiting wheat production to 90 percent of its base acreage. Feed grain production increases to compensate for the reduction in wheat, particularly wheat used for feed. Soybean acreage declines in this program as more productive wheat land is shifted to soybeans. Cotton acreage and total land in production remain unchanged.

Wheat land diverted under this program totals 9.8 million acres; 5.4 million acres are diverted in excess of the ten percent program diversion. This additional diversion occurs because the ten percent reduction in wheat acres does not eliminate the excess capacity to produce surplus wheat.

Feed grain land retired under the mandatory wheat diversion program amounts to 22.0 million acres, 1.5 million acres less than in the benchmark program. More feed grain production is needed to offset the decreased wheat supply. The location of the land diverted from feed grain production is comparable to the benchmark. North and South Dakota, Montana, eastern Kansas, Idaho, along with South Carolina, Georgia, and other states in the Southeast have large amounts of surplus feed grain land. The pattern of unused soybean and cotton land is unaffected by this wheat retirement program.

In general, several more regions retire land under this mandatory wheat retirement program than under the benchmark program, but the areas where unused land is concentrated are similar to the benchmark. A more diverse pattern of unused land should be expected, because all regions have to divert ten percent of their wheat land to non-agricultural uses unless it can economically be used for soybeans.

Cost per acre of retiring land in the mandatory wheat diversion program are greater than under a completely voluntary program, despite the fact that payment rates are determined in like manner. Under voluntary programs with efficient production, the most marginal land is diverted. Under mandatory programs, land in all regions is diverted, including land in highly productive regions. Thus, average costs per acre are raised. Table 6 shows the costs of retiring unused land under the wheat diversion program.

The cost of wheat land diversion has been appropriately split into mandatory and voluntary components in table 6. The cost of land forcibly withdrawn under the mandatory diversion totals $108.2 million. Voluntary wheat diversion payments equal $115.3 million. Voluntary costs are more than mandatory costs because a larger acreage is diverted under the voluntary diversion.

Average cost per acre shows a significant difference between mandatory and voluntary land diversion costs. The average cost of an acre of wheat diverted under the mandatory phase is $3 higher per acre. This is about 14 percent greater than the average voluntary payment.

The value of reduction in output of wheat purchased with each dollar of government payments decreases to $1.36 from the respective $1.47 of the benchmark program. This decreased efficiency of wheat diversion is a direct result of the higher per acre payments which are required. It is evident that production can be reduced more efficiently through retiring land in marginal areas than by retiring land of average productivity.

Table 6. Estimated government costs of retiring cropland not needed for production in the mandatory wheat diversion program.

Item	Unit	Wheat[a]	Feed Grain	Soybeans	Cotton	Total[b]
Base acreage	mil. acres	58.5	129.2	17.6	18.6	224.0
Unused acreage	mil. acres	9.8	22.0	4.5	4.3	40.6
Mandatory retirement	mil. acres	4.4	----	----	----	4.4
Voluntary retirement	mil. acres	5.4	22.0	4.5	4.3	36.2
Government cost(mandatory)	mil. dollars	108.2	----	----	----	108.2
Government cost(voluntary)	mil. dollars	115.3	466.4	195.8	336.5	1,114.0
Total	mil. dollars	223.5	466.4	195.8	336.5	1,222.2
Average cost per acre (mandatory)	dollars	24.54	----	----	----	---- 30.13[c]
Average cost per acre (voluntary)	dollars	21.54	21.21	43.71	77.65	----
Value crops reduced per dollar of government cost	dollars	1.36	2.41	1.47	2.12	1.99

[a]It was assumed that no payments would be made for land diverted from wheat to soybeans.

[b]Rounding may cause total to differ from sum of the elements.

[c]Average cost per acre for all acres retired.

Feed grain land retirement payments total $466.4 million, an amount which is lower than respective costs of the benchmark program, due to the reduction in acres diverted. Average cost per acre of feed grain diversion is $.40 less under this feed grain program than under the benchmark program. This small decrease occurs because more productive feed grain land is used for production. Thus, the average productivity of the unused feed grain land is lower under the mandatory wheat retirement program.

As stated earlier, unused soybean and cotton land would be practically unchanged by the mandatory reduction in wheat acreages. Comparison of cost items for these crops in table 6 with respective items in table 4 shows the similarity under both simulated programs.

Land diversion costs for this mandatory wheat retirement program are estimated to total $1.2 billion, as in the benchmark program. The increase in costs of wheat land diversion is offset by a complementary decrease in costs of feed grain land diversion. Average per acre diversion cost is similar in magnitude to the benchmark program. The wheat retirement program is nearly as efficient, also. The value of crops reduced per dollar of costs falls three cents to $1.99.

The distribution of payments under this wheat plan covers a larger area of the country because of the wider distribution of diverted land. A greater number of farmers also receive payments since reducing regional wheat base acreages by ten percent is equivalent to reducing the wheat base of every farm by ten percent.

Adjusted wheat diversion program

The adjusted wheat diversion program is adapted from the mandatory wheat diversion program just discussed. In the previous mandatory wheat program the diverted wheat acres were permitted to be used for soybean production when feasible. In the adjusted wheat program considered here, ten percent of the wheat base acreage is required to be diverted to non-agricultural uses. All other crop restrictions used in this program are unchanged from the wheat retirement program previously considered.

The pattern of unused cropland associated with the adjusted wheat diversion program is not greatly different than the wheat program from which it was derived. Every region with a wheat base in the adjusted wheat program necessarily has a minimum of ten percent of its wheat acres retired. Regions in the major winter wheat areas and in Corn Belt states have small amounts of unused land; regions in the Southeast have less surplus land.

Considerably more wheat land is retired by this program than is retired in the previous wheat program. Diverted acreages of feed grain, soybeans, and cotton are less in this wheat program than in the previous mandatory wheat diversion program. Some previously unused acres of these crops are needed for soybean production. Total unused land differs by only .1 million acres between these two wheat retirement programs.

Land diversion costs of this wheat program total $1.2 million. This is equal to the total cost for the benchmark program. (To be more exact, costs of this wheat program are estimated to be $400 greater.) Acreage diversion cost per acre is $29.96, almost identical to the benchmark average. Costs of these programs are remarkably similar

considering the relatively different pattern of unused land. Table 7 shows costs of the program.

Table 7. Estimated government costs of retiring cropland not needed for production in the adjusted wheat diversion program.

Item	Unit	Wheat[a]	Feed Grain	Soybeans	Cotton	Total[b]
Base acreage	mil. acres	58.5	129.2	17.6	18.6	224.0
Unused acreage	mil. acres	11.2	21.3	4.1	3.9	40.5
Mandatory retirement	mil. acres	5.9	----	----	----	5.9
Voluntary retirement	mil. acres	5.3	21.3	4.1	3.9	34.6
Government cost (mandatory)	mil. dollars	146.7	----	----	----	146.7
Government cost (voluntary)	mil. dollars	115.0	454.7	177.6	320.4	1,067.6
Total	mil. dollars	261.7	454.7	177.6	320.4	1,214.4
Average cost per acre (mandatory)	dollars	25.07	----	----	----	29.96[c]
Average cost per acre (voluntary)	dollars	21.56	21.34	43.27	81.38	29.96[c]
Value crops reduced per dollar of government cost	dollars	1.33	2.40	1.48	2.02	1.94

[a]It was assumed that no payments would be made for land diverted from wheat to soybeans.

[b]Rounding may cause total to differ from sum of the elements.

[c]Average cost per acre for all acres retired.

The cost of retiring wheat land is greater for this wheat program than for the benchmark program since the number of acres retired would be considerably larger and higher quality land would be retired. Average cost per acre for diverting the mandatory portion is estimated to be $25.07 per acre. The voluntarily retired wheat land is taken out of

production at an average per acre cost of $21.56. Again, the previous point made about retiring land of marginal versus land of average productivity is clear. Production can be limited more efficiently by diverting marginal land. The efficiency of retiring the wheat land, as indicated by the value of crops reduced per dollar of cost would drop to $1.33 under this wheat program. This is a direct result of retiring land of higher productivity.

The wheat diversion costs of this program can be compared to the cost of the 1962 Wheat Stabilization Program. Half a million fewer acres were retired by the 1962 program, but total diversion costs were $23.8 million more. The average cost of the 1962 program, $26.69 per acre, was 6.5 percent higher than the estimated average mandatory diversion cost of this simulated wheat program. A possible explanation for this higher average cost is that, in general, higher diversion payment rates were paid under the 1962 program. A more likely explanation, however, is that different patterns of diverted wheat land are responsible. The 1962 program diverted more wheat land in the major winter wheat producing areas such as western Kansas. The adjusted wheat retirement program designated three times as much wheat land to be diverted in the marginal wheat producing regions of South Dakota, for example, than was actually diverted there under the 1962 Wheat Program. It follows that the 1962 program was less efficient than the adjusted wheat diversion program which retires marginal land.

Average cost per acre of diverting feed grain land under the adjusted wheat diversion program would not be changed significantly from the benchmark program. Total feed grain diversion costs are decreased considerably due to the decreased number of acres diverted. Total diversion costs for soybean land are decreased, but average cost per acre would change little. The value of crops reduced per dollar of government costs for feed grains and soybeans is nearly the same as respective items of the benchmark program.

A more apparent difference in program costs is present with cotton. Since less cotton land is retired under this adjusted wheat program, total cotton land diversion costs are also less than the mildly restrictive benchmark program. Average cost per acre of cotton diversion is increased to $81.38 in the wheat program, from the $77.66 average cost in the benchmark program. The decrease in unused cotton land results as unused cotton land is shifted to soybean production.

Total program costs of this mandatory wheat retirement program and the benchmark program are similar. Although different amounts and patterns of unused land result, total government costs of these two programs are nearly identical. The similarities result because the increased cost of wheat land retirement is almost exactly offset by decreases in feed grain, soybean, and cotton land retirement costs. It is interesting to note that the efficiency of this program dropped; $1.94 of crops would be purchased with each $1 cost. The increased wheat diversion causes the drop in efficiency. The additional wheat

land which would be diverted by the wheat program is better quality land and could not be diverted as efficiently.

Feed Grain Programs

Three feed grain programs are examined: The unlimited feed grain program allows production of feed grains on all cropland in each region until total demand is satisfied at the specified price level; the mandatory feed grain diversion program reduces acreage 7.5 percent in each region, but allows production of soybeans on the land if economically feasible; the adjusted feed grain diversion program reduces acreage 7.5 percent and requires the land to retire from crop use.

Unlimited feed grain program

Farmers grow unrestricted acreages of corn, oats, barley, and grain sorghum under the unlimited feed grain program. The only restriction on feed grain production in each region is total available cropland. All other program characteristics are unchanged from the benchmark program.

Wheat production decreases from the benchmark in the unlimited feed grain program. Eastern and Corn Belt states have the largest reductions in wheat production. Kansas has a sizeable drop in wheat production too. Total feed grain acreage is also reduced from the benchmark program with the removal of base acreage limitation. Feed grains specialize in regions of high productivity. As a result, the Corn Belt and Northeast states have large increases in feed grain production. Feed grain production in regions in most other states declines. With higher quality land used for feed grains, fewer acres are required to meet the level of demand. Soybeans are pushed out of the Corn Belt into less productive areas. Cotton production is only slightly affected by this program.

Feed grain land to be diverted totaled 11.8 million acres more than in the benchmark program (see table 3). Fewer acres are needed since feed grain production is permitted to concentrate in areas having a comparative production advantage. As feed grains concentrate in the Corn Belt, fringe areas of Ohio, Michigan, Wisconsin, and Minnesota have increased acres of unused feed grain land. Eastern states, plus South Dakota, Oklahoma, and Texas also have significant increases in unused feed grain land.

Unused soybean land decreases to 1.8 million acres, as feed grain production shifts soybeans out of the high producing regions of the Corn Belt. The most prominent decreases in unused soybean land occurs in the Southeastern states and the states of Minnesota, Kansas, and Arkansas.

Cotton land retired by this feed grain program also decreases from the benchmark. Most of the change in unused cotton land takes place in Arizona where 528 thousand acres of cotton land, diverted in the benchmark program is used for production in the feed grain program.

The pattern of unused cropland is, in general, similar to the benchmark program. Seventy-eight percent of the total available acreage in South Carolina, Georgia, Alabama, Florida, Mississippi, and Louisiana is diverted to non-agricultural uses. Large acreages are again idled in North and South Dakota, eastern Kansas, Michigan, Minnesota, and Idaho. There are 7.4 million more acres of land diverted by this feed grain program than by the benchmark program, but 17 fewer regions retire land. Crop production intensifies in those regions with a cost advantage for feed grains, creating a more intensive pattern of unused land.

Total costs of diverting all surplus cropland to non-agricultural uses is greater for the unlimited feed grain program than the benchmark program. The additional cost of this feed grain program, which retires 7.4 million more acres of land, is $69.7 million. Total government costs as incentive payments to farmers equal $1.3 billion (see table 8). Land is retired at an average cost of $26.80, which is $3.17 below the benchmark average and the lowest of any program considered. The lower average cost results because this feed grain program makes intensive use of available cropland, specializing feed grain production in high producing areas. Even with the much larger number of acres to retire, lower average costs per acre result from a more intensive pattern of production. This program is the most efficient program analyzed. Each dollar of cost would reduce the value of crops produced by $2.12.

There is little change from the benchmark program in per acre wheat diversion costs, despite there being .9 million fewer acres to divert. Feed grain land is diverted at an average cost of $23.93 per acre, up 10.7 percent from the benchmark program. Higher quality feed grain land is diverted which effectively increases per acre diversion costs. A total of $845.8 million in government costs is needed to retire the feed grain land in the unlimited feed grain program. One dollar of government payments keeps $2.14 of feed grain crops from being produced, a 9.3 percent decrease in efficiency.

A sharp decline in the number of soybean acres retired is experienced. Only $73.7 million is required to remove the soybean land from production. Average diversion cost per acre declines to $41.59.

Cotton land retirement costs are also estimated to decline on the average. Average cotton diversion costs per acre are $60.52 with total cost equaling $212 million. The cotton acreage is retired 28.3 percent more efficiently than in the benchmark program.

Table 8. Estimated government costs of retiring cropland not needed for production in the unlimited feed grain program.

Item	Unit	Wheat	Feed Grain	Soybeans	Cotton	Total[a]
Base acreage	mil. acres	58.5	129.2	17.6	18.6	224.0
Unused acreage	mil. acres	7.3	35.3	1.8	3.5	47.9
Voluntary retirement	mil. acres	7.3	35.3	1.8	3.5	47.9
Government costs	mil. dollars	152.3	845.8	73.7	212.0	1,283.7
Average cost per acre	dollars	20.90	23.93	41.59	60.52	26.80
Value crops reduced per dollar of government cost	dollars	1.49	2.14	1.54	2.72	2.12

[a]Rounding may cause total to differ from sum of the elements.

The unlimited feed program is shown to be more efficient than the benchmark program since more intensive use is made of the available cropland. Efficiency is increased as feed grain production utilizes only the most productive feed grain land and some of the most productive wheat, soybean, and cotton land. Fewer acres of wheat, soybean, and cotton land are diverted. The increased efficiency of diverting unused land in these crops is more than offset by decreased efficiency in diverting feed grain land. Total program efficiency is increased as a result. A feed grain program which stimulates a more intensive feed grain production pattern is relatively efficient costwise.

Mandatory feed grain diversion program

Another direction feed grain programs could take would be the reverse of the unlimited feed grain program just examined. That is, feed grain production quotas could be levied. This is the identifying characteristic of the mandatory feed grain diversion program. The feed grain base acreage is reduced 7.5 percent in each producing region. Soybean production is permitted on diverted feed grain acres, but is limited to 40 percent of total land. Wheat and cotton are restricted in production to 100 percent of their base acreages.

The pattern of crop production is shifted by this program from that of the benchmark. Feed grain production decreases most in the

Corn Belt states. Feed grain acreage expands in Kansas, Oklahoma, Nebraska, and North Dakota. Wheat production for feed increases significantly to offset the decrease in feed grains produced. The Great Plains states and the eastern Corn Belt have large increases in wheat production. Soybean production is concentrated more in the Corn Belt states as diverted feed grain land is made available for its use. Cotton production is not affected by restrictions on feed grain production since these two crops did not compete for land.

The 36.1 million acres of surplus land designated by the mandatory feed grain diversion program is 4.4 million acres less than the benchmark program. This indicates that less intensive use would be made of the available cropland.

The largest change in the unused pattern of wheat land occurs in the Dakotas where over four million acres of land, diverted in the benchmark program, is put into production under this feed grain program. Michigan and Kansas also have fewer unused wheat acres. Only 3.2 million acres of wheat land are unused in this program, the lowest of any program thus far considered.

Feed grain land diverted under this program includes both mandatory and voluntary diversions. All feed grain acres diverted in excess of the 7.5 percent diversion are considered voluntary diversions. Mandatory diversions could have totaled 9.7 million acres since this was 7.5 percent of total feed grain base acreage. However, mandatory retirements equal only 5.3 million acres; the remaining 4.4 million acres are diverted to soybean production. In addition to the mandatory retirement, 17.9 million acres are voluntarily diverted.

More soybean land is diverted than in the benchmark because soybean production is increased on diverted feed grain land. There are 5.3 million unused soybean acres.

Costs of wheat diversion are considerably lower in the mandatory feed grain diversion program due to the decreased number of diverted acres. Only $72.1 million in government payments is required to divert the wheat land (see table 9). Average cost is $22.40 per acre, up about six percent from the benchmark program.

Diversion costs for feed grain land are split into mandatory and voluntary components in table 9. Payments made for mandatory retirements total $161.5 million, while voluntary diversion payments, given the larger diversion, equal $374.3 million. The voluntary portion is diverted at an average cost per acre of only two-thirds the mandatory portion. Recalling that the mandatory portion of retired land occurs in all regions, except where soybeans are grown on the feed grain land, it follows that this diversion includes land of varying qualities. Since the voluntary diversion takes only the most marginal land out of production, the difference in the productivities of the land explains the difference in average cost of diverting the mandatory and voluntary portions. It also explains the drop in efficiency of controlling feed

Table 9. Estimated government costs of retiring unused cropland in the mandatory feed grain diversion program.

Item	Unit	Wheat	Feed Grain[a]	Soybeans	Cotton	Total[b]
Base acreage	mil. acres	58.5	129.2	17.6	18.6	224.0
Unused acreage	mil. acres	3.2	23.2	5.3	4.3	36.1
Mandatory retirement	mil. acres	---	5.3	---	---	5.3
Voluntary retirement	mil. acres	3.2	17.9	5.3	4.3	30.7
Government costs (mandatory)	mil. dollars	---	161.5	---	---	161.5
Government costs (voluntary)	mil. dollars	72.1	374.3	238.5	336.7	1,021.6
Total cost	mil. dollars	72.1	535.9	238.5	336.7	1,183.1
Average cost per acre (mandatory)	dollars	---	30.63	---	---	--- 32.79
Average cost per acre (voluntary)	dollars	22.40	20.86	44.97	77.60	---
Value crops reduced per dollar of government cost	dollars	1.39	2.21	1.43	2.12	1.98

[a]It was assumed that no payments would be made for land diverted from feed grain to soybeans.

[b]Rounding may cause total to differ from sum of the elements.

grain production. Incentive payments required to retire the 23.2 million acres of feed grain land total $535.9 million. Each dollar in costs purchases $2.21 worth of feed grain production.

Soybean acres retired by this program are about 18 percent higher than in the benchmark program. The increased diversion indicates that the average productivity of the soybean land is higher. Average diversion costs are increased accordingly. Per acre average cost of $44.97 is $1.26 higher than in the benchmark program. Soybean diversion payments total $238.5 million. Cotton land is not

affected by the feed grain diversion program. Average and total cotton diversion costs are also unaffected. Incentive payments of $336.7 million are needed to remove the desired cotton land from production.

In total, 1.2 billion dollars are required to employ the feed grain diversion program. This program retires only 89.1 percent as much land, but requires 97.4 percent of the cost of the benchmark program. Once again, the importance of the character of the land is pointed up. The per acre cost of land diversion is increased 9.4 percent, as a result of the higher quality feed grain land being diverted. Efficiency is decreased. The value of crops reduced per dollar of cost drops to $1.98. Programs which divert land in regions with a production advantage are less efficient.

Adjusted feed grain diversion program

The 1964 feed grain program did not permit any crop to be harvested from acres diverted under the program. The preceding simulated mandatory feed grain retirement program permitted soybean production on diverted feed grain land. The program here considered, prohibits any crop production on diverted feed grain land.

Acreage adjustments are made on the previous mandatory feed grain retirement program to derive this program. Soybean production which occurs on the mandatorily diverted feed grain land in the previous program is shifted to other regions. Demand levels continue to be met.

A minimum of 7.5 percent of the feed grain land is diverted to non-agricultural uses in each producing region of the adjusted feed grain diversion program. All other program restraints and characteristics are identical to the benchmark program.

The production patterns of this program are not changed from the preceding program with the exception of soybeans. Forcing the diverted wheat land to a non-agricultural use has a large impact on soybean production. More than a fourth of the soybean acres are affected. Soybean production is shifted out of the Corn Belt and into regions of the East, the Southeast, and some previously marginal soybean areas on the fringes of the Corn Belt.

There are 35.6 million acres diverted under the adjusted feed grain diversion program. The average cost per acre is estimated to be the highest of any program analyzed. The estimated average cost of $34.90 per acre is nearly $5 above the benchmark average. This relatively high average is due to the additional feed grain land which is retired. Over-all program efficiency is 10.4 percent below the benchmark program. The $1.81 worth of crops reduced per dollar of cost is also low.

Total program costs again round to $1.2 billion as in the benchmark program. This feed grain retirement program costs $28 million more, but diverts 4.9 million fewer acres of land than the mildly restrictive benchmark program.

Analysis of table 10 shows why changes occur in program costs. The average cost per acre of diverting the wheat land, $21.21, remains unchanged from the benchmark program. Some of the most marginal wheat land is used for feed grains so that the average diversion cost does not decrease. If the most marginal wheat land is diverted, average diversion costs are lower.

Table 10. Estimated government costs of retiring cropland not needed for production in the adjusted feed grain diversion program

Item	Unit	Wheat	Feed Grain	Soybeans	Cotton	Total[a]
Base acreage	mil. acres	58.5	129.2	17.6	18.6	224.0
Unused acreage	mil. acres	2.5	26.4	2.7	4.0	35.6
Mandatory retirement	mil. acres	---	9.4	---	---	9.4
Voluntary retirement	mil. acres	2.5	17.0	2.7	4.0	26.2
Government costs (mandatory)	mil. dollars	---	373.3	---	---	373.3
Government costs (voluntary)	mil. dollars	53.9	389.0	113.3	312.6	868.8
Total cost	mil. dollars	53.9	762.3	113.3	312.6	1,242.2
Average cost per acre (mandatory)	dollars	---	39.52	---	---	---
Average cost per acre (voluntary)	dollars	21.20	22.94	42.14	78.96	---
						34.90[b]
Value of crops reduced per dollar of government cost	dollars	1.47	1.77	1.52	2.08	1.81

[a] Rounding may cause total to differ from sum of the elements.
[b] Average cost per acre for all acres retired.

The cost of diverting highly productive feed grain land in the Corn Belt is reflected in the average mandatory diversion cost of $39.52 per acre. Voluntary diversion costs average only $22.94. About a third of the feed grain diversion is mandatorily diverted. The high cost of this one-third makes the total feed grain diversion in this program only 75 percent as efficient as the benchmark program. Only $1.77 of feed grains is purchased with each $1 of incentive payments. This is the least efficient feed grain diversion of all programs considered in this study.

Comparison of the feed grain diversion payments of this feed grain diversion program with those of the 1961 feed grains program show about the same acreage diversion in both programs. The adjusted feed grain retirement program retires 1.2 million more acres. The rental rates under the 1961 program were also based on productivity of the land. They averaged about $31 per acre for the United States as a whole. This is $2.13 above the average rate for all feed grain diverted in the adjusted feed grain retirement program. Total payments to farmers equaled $782 million under the 1961 program. About $20 million more was required for the 1961 program which diverted 1.2 million acres less land. Shepherd, et al., estimates production was reduced by 939 million bushels of corn equivalent under the 1961 program (8, p. 22). With corn at $1.10 per bushel, the same price as in the program above, each dollar in payments is estimated to have purchased $1.32 worth of production. This compares with the estimated $1.77 worth of crops production which could be reduced by each dollar of payments in the adjusted feed grain diversion program. The 1961 program is estimated to be about 75 percent as efficient in controlling production of feed grains.

Free Markets

The last simulated program examined portrays a "quasi-free market" for agriculture. Regional wheat and feed grain production restraints are completely removed allowing production to locate in regions of comparative advantages with only total cropland restricting production in each region. Total output of feed grains and wheat is limited to amounts resulting in the national level of prices in table 2, but this production can be located in regions with greatest comparative advantage. Cotton acreage quotas are set equal to 200 percent of the historical base acreage in each region, or to total regional cropland, whichever is smaller. Soybeans are restricted to 40 percent of available cropland in each region.

A free market program implies that no price supports or government payments are made to farmers. Under such a situation, farmers face adjustments in land use over a longer period of time. However, in this study, it is assumed that farmers whose land is indicated for retirement are compensated so the pattern of land use is employed immediately. The program here considered is thus referred to as a "quasi-free market" program since it does not meet

all the requirements of a true free market. Instead, an attempt is made to determine the cost of engaging a land use pattern that might exist under free markets in agriculture. The compensation assumed prevents severe hardships from being inflicted on farmers with marginal land while the long run pattern of land use resembling a free market program is implemented.

A significant change from the benchmark program occurs in the production pattern under the quasi-free market program. Wheat production increases with wheat generally shifting out of the Corn Belt and into the Great Plains and western states. Very little wheat is grown in the eastern half of the country. Feed grain acreage decreases sharply as (1) production shifts into the more efficient areas of production and (2) the use of wheat for feed increases. Feed grain production is concentrated in the Corn Belt, Texas, Nebraska, Kansas, and South Dakota.

Some shifts in soybean production occurs but the Corn Belt remains the center of production with Illinois being the largest producing state. The quasi-free market is the only program considered thus far which has a sizeable affect on cotton production. Production of cotton is completely eliminated from all states except Texas, Oklahoma, and California.

Unused cropland is more concentrated than under the benchmark program. The quasi-free market program retires 6.6 million more acres of land while 41 fewer producing regions have land retirements. The Southeast has larger acreages of unused land. Eighty-four percent of all available cropland in South Carolina, Georgia, Alabama, Florida, Mississippi, Louisiana, and Arkansas is unused. In North and South Dakota, Montana, and Idaho, 44 percent of the available acreage is diverted.

Unused wheat land increases 1.8 million acres in the free market program. This increase occurs mostly in states of the Southeast, the Corn Belt states, and in Kansas and Montana. Diverted feed grain land also is increased as production specializes in the high producing regions of the Corn Belt. Noticeable decreases in unused feed grain land occur in Ohio, Wisconsin, Minnesota, Michigan, South Dakota, and states in the Southeast.

This quasi-free market program is the costliest of all programs. Payments made to farmers total 1.6 million dollars, as indicated in table 11. The benchmark program costs are estimated to be about two-thirds this amount. Total land retired is 13.8 percent greater in this program. Average diversion cost per acre is $34.20, up 14 percent from the benchmark program. Each dollar in payments made under this program reduces the value of crops produced by $1.90. The quasi-free market program is estimated to be 94 percent as efficient as the benchmark program.

Table 11. Estimated government costs of retiring cropland not needed for production in the quasi-free market program.

Item	Unit	Wheat	Feed Grain	Soybeans	Cotton	Total[a]
Base acreage	mil. acres	58.5	129.2	17.6	18.6	224.0
Unused acreage	mil. acres	10.0	28.2	1.6	7.3	47.1
Voluntary retirement	mil. acres	10.0	28.2	1.6	7.3	47.1
Government costs	mil. dollars	220.1	765.0	67.5	557.5	1,610.1
Average cost per acre	dollars	21.96	27.11	42.87	76.77	34.20
Value of crops reduced per dollar of government cost	dollars	1.42	1.88	1.50	2.15	1.90

[a]Rounding may cause total to differ from sum of the elements.

Feed grain land retired is most responsible for the decreased efficiency of this program. Feed grain payments are estimated to total $765 million with a per acre average of $27.11. As feed grain production centers on the highest quality land, the average productivity of the remaining unused acreage increases. This explains the 25 percent increase in average feed grain diversion costs and the drop in efficiency. Only $1.88 of crop production is purchased with each dollar of feed grain diversion costs. Feed grain production is controlled about 20 percent more efficiently under the benchmark program.

Little change occurs in average wheat diversion costs. Total wheat payments are increased to $220 million due to the increased diversion. Average diversion cost of soybeans and cotton are significantly changed from the benchmark program. Total cotton diversion payments increase to $557.5 million as the diverted acreage increases. Total soybean diversion costs drop to $67.5 million with the large decrease in acres diverted.

In going from a mildly restrictive program, such as the benchmark program, to a more intensive agriculture as in the quasi-free market program, average per acre diversion costs increase. Total program costs are also considerably higher since less land is needed for production as a more intensive cropping pattern develops.

Cost Comparisons of Present Farm Programs and Simulated Farm Programs

Present farm program costs

Direct government payments to farmers in 1964 for wheat, feed grains, and cotton were estimated at $1.9 billion (19). Of this amount, wheat farmers collected about $430 million in federal payments, feed grain producers about $1.2 billion, and cotton farmers about $40 million. Payments made under the Conservation Reserve program totaled about $200 million.

Direct government payments for any one year are subject to fluctuations; for example, early payments to farmers cause payments to fluctuate substantially from year to year. Therefore, the estimated direct payments to farmers in 1964 are not used alone as a yardstick to measure and compare the costs estimated for the various farm programs in this study. Instead, direct payments for the years 1961 through 1964 are included as an average cost of programs against which the simulated farm programs are compared. Other program costs related to controlling production of wheat, feed grains, soybeans, and cotton are also included. Payments made for other commodities are not included since the estimated costs of the various programs of this study include only the above mentioned crops.

The following items are used to determine the average cost of current farm programs: (1) direct government payments to farmers for land diversion and price supports; (2) Commodity Credit Corporation losses on current year acquisitions and dispositions; and (3) CCC storage, handling, transportation, and interest expenses on the acquisition and disposal of current year surplus stocks. No charge is included for carrying the large stocks of crops which have built up in recent years and are sometimes considered as strategic reserves or contingency stocks. The total payments made to farmers for the program crops are ascertained from United States Department of Agriculture information (20, p. 124ff). Included in this item were payments made under the Conservation Reserve Program. It is assumed that the land under Conservation Reserve contract previously produced controlled crops.

The CCC losses on dispositions include losses on current acquisitions only. A more accurate estimate of annual CCC losses results if the large surpluses from past years are not included. Only the losses on current acquisitions for the year in question are considered a part of that year's program cost. These losses are determined by multiplying the percent loss on all CCC dispositions for the year times the total cost value of acquisitions for the appropriate year. Total transportation expenses of the CCC are estimated on acquisition of stocks and the reduction in dispositions which occurs when the current year's acquisitions are sold. Storage, handling, and interest expenses are estimated on the current year's change in inventories.

An average cost of current programs is determined by weighting each year's sum of the cost elements according to its contribution to total costs for the four years considered. This weighted average program cost for production control and price supports for wheat, feed grains, soybeans, and cotton totaled $2,188.4 million for 1961-64. This $2.2 billion average program cost serves as a basis of comparison with the costs of the simulated programs. Table 14 itemizes the estimated elements of the average cost of current programs.

Table 14. Estimated average annual cost of current farm programs.

Item	Cost (millions of dollars)
Wheat	282.6
Feed Grain	943.3
Soybean	---
Cotton	16.0
Conservation reserve	277.0
Loss on CCC dispositions (current years only)	362.1
CCC transportation (current years only)	61.3
CCC storage, handling, and interest (current years only)	246.1
Total	2,188.4

Source: Calculated using data from USDA, ERS, Farm Income State Estimates, 1949-63: FIS-195, 1964; and USDA, CCC, Commodity Credit Corporation Charts, February 1964.

Administrative costs are completely ignored in determining the average cost of current programs as is done in estimating the costs of the programs of efficient production. With diverted land generally being retired in fewer regions in the simulated farm programs, administrative costs might be reduced from present levels. For comparison purposes, the administrative costs of all programs are assumed equal.

Estimated savings in farm program costs

The surplus production capacity which exists in American agriculture will apparently continue for some years to come. Skold (9) estimates that larger acreages of land may need to be retired in 1975 than were retired for 1965. Accordingly, large expenditures will be required to control production from this surplus capacity. If programs continue to take the short-run approach, annual expenditures for farm programs may increase without reaching a permanent solution to the overproduction problem.

The long-run approach taken by the farm programs of this study also require large expenditures to implement. These programs, however, are designed to permanently eliminate surplus production, and in so doing, eliminate the need for repeated price support and production control programs. Farm programs which provide for more efficient production also have real cost advantages over programs which do not simulate regional shifts in crop production necessary to minimize cost of production.

Costs of the simulated programs can be placed in perspective by comparing them with the estimated average $2.2 billion cost of present farm programs. Table 15 indicates the estimated change in farm program costs that occur in going from present programs to those providing for more efficient production of wheat, feed grains, soybeans, and cotton. In all programs, a substantial decrease in costs results.

Table 15. Comparison of present program costs with costs of cimulated programs employing optional patterns of minimum cost production.

Program	Total cost (mil. dollars)	Change from present cost (mil. dollars)
Benchmark	1,214.0	-974.4
Unl. wheat	1,080.1	-1,108.3
10% wheat div.	1,222.2	-966.2
Adj. wheat div.	1,214.4	-974.0
Unl. feed grain	1,283.7	-904.7
7.5% feed grain div.	1,183.1	-1,005.3
Adj. feed grain div.	1,242.2	-946.2
Quasi-free market	1,610.1	-578.3

Employment of the benchmark program permits a reduction in costs of $974 million. The total diversion payments made under this program are 55.5 per cent of present average program costs. Over a ten-year period, a $9.7 billion savings in cost is realized by diverting only marginal land.

The unlimited wheat program reduces costs from present levels by slightly more than $1 billion. The two mandatory wheat diversion programs result in about a $970 million cost decrease. Employing the unlimited feed grain program is estimated to eliminate slightly over $900 million in farm program costs. A savings in costs of $1,005 million and $946 million results from the feed grain diversion and adjusted feed grain diversion programs respectively.

The magnitude of the change in costs clearly indicates that government expenditures can be reduced sharply by employing farm programs which retire land based on its level of productivity. Over a ten or 15-year period, the savings in costs is an even more impressive figure.

Governmental Purchase of Cropland

Another possible way to retire surplus cropland designated by the simulated programs of this study is government purchase of the land from farmers. Governmental purchase of unused land can permanently eliminate the need for temporary programs year after year. A land-buying program would entail a large initial outlay of funds since it costs more to purchase an acre of land than to rent it for a year. In the long run, however, there might be a considerable savings in total program costs. Of course, the public need not buy the land per se; it could simply purchase the rights to produce the particular crops, with farmers allowed to produce other non-surplus crops. In later sections, land purchase will simply serve as an "abbreviation" for either actual purchase of land or simply the purchase of rights to produce surplus crops (with land title and management remaining in farmers' hands).

Cost of purchasing surplus cropland

The costs of government purchase of surplus cropland in the programs of this study are estimated, based on state average values of land and buildings for 1964 (21, p. 13). No attempt was made to project land values to 1965 and succeeding years. The land indicated for retirement in each state under the various simulated programs is lower quality land and has a lower value than the state average. State average values thus tend to make the estimated purchase costs too high. However, they provide a conservative estimate of (a) the amount of savings possible by efficient programs, (b) of gains from land purchase as compared to land rental, and (c) the differences between the efficient programs and current programs. It is also likely, however, that land values would rise if the government started purchasing land. The magnitude of this increase is unpredictable. Land values have been steadily rising under past programs, too. These factors indicate that using 1964 values make the cost estimates too low. With these offsetting factors in mind, it was assumed that 1964 land values provide a reasonable estimate of the per acre government expenditures required to purchase the surplus land.

Total government expenditures required under the land-buying programs are determined by estimating the total number of acres which are required to be purchased in order to withdraw the indicated number of unused crop acres in each of the simulated programs. In any program of purchasing farms, not all acres of each farm are crop acres;

therefore, additional acres have to be purchased. To estimate the additional acres which are required to be purchased, we compute for each state: (1) the average number of total crop acres for each farm which reported cropland harvested in the 1959 Census of Agriculture; farms not reporting cropland harvested are not involved in the land-purchase program; (2) the average total number of acres per farm excluding farms listed as livestock ranches in the 1959 agricultural census; and (3) the ratio of crop acres per farm to total acres per farm. This ratio represents the per cent of each state's farms which is crop acres. Using this ratio and the number of unused acres of cropland per state from the simulated programs, an estimate of the total number of acres to be purchased in each state is derived. These acres times the average price of land and buildings in each state is the estimated cost of purchasing adequate acres of land to reduce surplus production of the crops included. Adding all states together gives the total cost of the land-purchase program.

Table 16 presents the data on costs of land-purchase programs. Total and average per acre costs are shown. Costs per acre vary from $111 in the benchmark program to $122 in the adjusted feed grain programs which requires ten percent of each region's feed grain acreage to be removed from production. The diversion of only marginal land under the benchmark program lowers the average purchase price per acre.

A total government expenditure of $8.3 billion is required to purchase the 40.5 million acres of surplus cropland under the benchmark program. The unlimited wheat program has a lower total cost while both wheat diversion programs have slightly larger cost requirements than the benchmark. The unlimited feed grain program is considerably more costly while purchase costs of the feed grain diversion programs are estimated to be less than the benchmark program. The program of quasi-free markets in agriculture costs significantly more than other programs due to a larger acreage of surplus land and a larger average cost per acre.

The government expenditures required to purchase the surplus cropland of the programs considered can be put in perspective by looking at the two columns on the right in table 16. These columns indicate how many years must elapse before the sum of annual program costs equals the purchase price of the land for each program. The second column from the right indicates the number of years of rental payments necessary before the total payments of simulated programs exceeds the purchase price of the land. The column on the right gives the same information using average 1961-64 program costs.

The total cost of purchasing the surplus land of the benchmark program is paid out as annual diversion payments in about seven years using the payment rates of this study. In a period of less than eight years, the annual diversion payments purchase the surplus cropland in any of the programs. Over a ten-year period, the savings in

Table 16. Estimated governmental expenditures required to purchase unused cropland by program.

Program	Unused crop acres purchased	Total acres purchased	Average cost per acre	Total cost	Number of years of annual rental payments required to equal purchase price of total acres with: simulated programs	Number of years of annual rental payments required to equal purchase price of total acres with: average 1961-64 programs
	million acres	million acres	dollars	million dollars	years	years
Benchmark	40.5	75.1	111	8,329.7	6.9	3.8
Unlimited wheat	38.2	67.2	120	8,038.2	7.4	3.7
Wheat diversion	40.5	74.6	113	8,472.8	6.9	3.9
Adj. wheat diversion	40.5	73.5	112	8,188.1	6.7	3.7
Unlimited feed grain	47.9	86.8	112	9,716.5	7.6	4.4
Feed grain diversion	36.1	67.1	120	8,072.3	6.8	3.7
Adj. feed grain div.	35.6	64.3	122	7,863.4	6.3	3.6
Quasi-free market	47.1	85.4	121	10,365.5	6.4	4.7

annual rental payments by purchasing the land in the benchmark program amounted to almost four billion dollars. This money could be used to retrain farmers for other occupations. We explore this possibility later.

The period of time required to elapse before the sum of rental payments equals the purchase price of the land is even less using costs of present farm programs. Less than four years are required before the sum of the annual diversion payments under present programs exceed the expenditures for purchasing the surplus land in the benchmark program. The surplus land in any of the programs considered can be purchased at an expense no greater than the present total annual payments made to farmers for diverting their land for a five-year period. For the benchmark program, program

costs are reduced $14 billion in ten years if the land is purchased as opposed to renting it annually.

The number of years indicated are minimums and are cited to point out the relationship between the purchase cost of the surplus land and the annual diversion payments necessary to remove the land from production. Only a short period of time is required to reach the break-even point in costs for the land purchase over the rental programs.

The reduction in costs that is expected by employing the benchmark annual rental program as opposed to present programs permits a further analogy to be drawn. The annual $974 million savings in costs under the benchmark program compared to present program costs is of such magnitude that in a period of eight and one-half years all the surplus cropland of the benchmark program can be purchased with the accumulated savings.

Period of implementation

It would not be possible for a land buying program undertaken by the government to purchase all the desired land in the relatively short periods of time cited above. Purchasing the land in two or three years requires that the government exercise its right of eminent domain, which is politically unfeasible. Land prices will likely skyrocket if land is rapidly purchased by the government.

Each year about 11 million acres of land are voluntarily sold or transferred in the United States. This land is scattered all over the country and does not necessarily fall in one of the surplus land regions of the programs in this study. Assuming that about five million acres of land can be purchased each year, it takes approximately fifteen years to purchase the surplus land designated by the benchmark program. A governmental land buying program has to proceed at a slow rate so that land prices are not driven abnormally high and also because the desired land does not come on the market immediately.

Alternative uses of land

Cropland is diverted to a nonagricultural use in the land-rental and land-buying programs considered in this study. The land retired or purchased in the simulated farm programs would generally be the most marginal or least productive incomewise. This implies that high costs of production and low net returns occur on these acres. Returns on some of this marginal land in a nonagricultural use might be zero. In other cases the alternative use may be more valuable than crop production.

One example of a more intensive use made of surplus cropland would be using land for housing developments. Only a small percentage of the land could be used for this purpose, however. Recreation is another possible use to be made of surplus cropland. This alternative will become more important as the population increases, incomes rise, and people have more leisure time. One hindrance to the diversion of marginal land to recreational uses is that it may not be located near the large population centers, and thus would be rather inaccessible.

Forestry is a logical use for some diverted cropland. Lumber production is well suited to certain areas, especially in the Southeast. Lumber is in short supply while the demand for it is increasing. Forestry is also well suited to government land management since it is a long-range enterprise.

Effects of Concentrated Land Retirement

Whole communities suffer whenever land is retired in concentrated areas. Nonindustrial areas which rely primarily on agriculture for support are especially prone to economic stress. Rural bankers lose a large part of their business. Grain elevators, farm equipment dealers, and stockyard operators may have to close their shops.

A program that pays farmers their net income over variable expenses to divert land makes participating farmers no worse off financially. The agribusiness people suffer most. Under a governmental land-buying program, both farmers and people in the farm supply business would be put out of a job in some regions; farm incomes are maintained however. To make such programs more acceptable to the public, compensation could be made, not only to the farmer, but also to other people in the community who suffer financially under the program. These people, as well as farmers, might need to be trained for other occupations.

T. W. Schultz and R. S. Dougan have proposed similar programs that offer farm families funds to help them move off the farm and retrain for urban jobs (3 and 10, pp. 12-15). They both suggested a payment of $5,000 in money and services be made to those farmers who leave the farm. This $5,000 figure is used here to investigate the possibility of compensating persons adversely affected by the benchmark program.

Under the benchmark program, an estimated 40.5 million acres of cropland or 75.1 million total acres of land in farms is required to be purchased in order to remove excess production of the crops included in this study. To convert this acreage into numbers of farms, the total acres in each state is divided by the average size of farms in that state. Livestock ranches are removed before the average size of farm is calculated. After the number of farms are calculated for those states with excess cropland under the benchmark program, a total is derived for the United States.

An estimated 308,000 farmers are affected by the purchase of unused land under the benchmark program. Compensating each of these farmers with $5,000 requires a total expenditure of about $1.5 billion. Under the rental program considered for the benchmark program, this additional compensation might not be needed, since farmers are financially no worse off when receiving the diversion payments. Society would have to decide whether this additional incentive should be given to farmers participating in the program.

If a governmental land-buying program were employed, society might be more willing to give farmers compensation in addition to the purchase value of their farms. Farmers, under this program, have to find another occupation unless they are retiring. Society might be generous enough to give financial aid to participating farmers desiring to find urban employment.

Assuming (1) that society will compensate farmers not only for the purchase price of the land, but also for moving and occupational training expenses and (2) that the additional compensation is $5,000 per farmer, the total expenditure to farmers above land costs is $1.5 billion for the 308,000 farmers assumed to participate in the benchmark program. Recalling that in ten years the estimated cost of buying the land in this program is about $14 billion less than the present annual program costs, the indication is that the additional $1.5 billion can be paid to farmers with costs remaining $12.5 billion less for the benchmark program.

All or part of the $12.5 billion cost saving could be used to compensate those people, other than farmers, who encounter adverse effects from the land-buying program. Assuming the number of these people equals the number of farmers and each is given $5,000 to relocate and train for a new job, the land-buying program still costs $11 billion less than future costs if programs continue as at present for the next ten years.

The remaining $11 billion can be used to purchase businesses from people in the community forced to close their shops. Assuming these people are compensated with an amount equal to one-half the purchase price of the farmers' land, the total cost of the land-buying program continues to be significantly less than the cost of future programs if the present cost trend continues. Table 17 outlines the cost differential. The total cost of the land-buying program including the above compensation is estimated to be over $6 billion less than the expenditures made under the continuation of present programs.

Continuation of the benchmark land rental program for ten years is estimated to cost $4 billion less than costs of continued present programs after persons adversely affected are compensated. As indicated in table 17, compensation is assumed to be made to people other than farmers at the same rate as in the land-buying program. No compensation is made to farmers for relocating and finding another job. It was assumed their annual diversion payments are just compensation since they are no worse off financially.

Table 17. Comparison of estimated farm program expenditures from 1965 to 1975 using the benchmark program.

Item	Annual land rental	Governmental land buying	Present cost continued
		(millions of dollars)	
Land diversion payments	12, 140. 0	---	---
Purchase cost of land	---	8, 329. 7	---
Compensation to farmers for relocating	---	1, 540. 0	---
Compensation to other people for relocating[a]	1, 540. 0	1, 540. 0	---
Compensation to other people for lost business[a]	4, 164. 8	4, 164. 8	---
Total for ten-year period	17, 844. 8	15, 574. 5	21, 884. 0

[a]"Other" refers to non-farm persons adversely affected by the program.

Given the assumptions made, it can be said in summary of the land-rental and land-buying programs that if either type of program is employed, (a) all surplus land can be rented or purchased, (b) farmers and other people put out of a job can be trained and relocated, and (c) businesses unneeded by the farm program can be purchased with total costs over a ten-year period significantly less than costs of programs in recent years.

Administrative costs have again been ignored in the above discussion. It has already been stated that the cost of administering the land rental programs might be less than that of present programs. Land-buying programs could conceivably cost more to administrate. However, estimated public outlays required for permanent retirement of surplus capacity through land purchases show that if land purchases were acceptable to society, a much smaller public outlay would be required over a period of years.

Many of the trends in land use shown in this study are already taking place in various regions of the United States. Cotton production has shifted regions as fast as program restraints allowed. Trends in feed grains and wheat are also apparent. Farm numbers have declined sharply in the Great Plains and areas of the southeast United States. In some of these areas, total population is also declining which causes problems of non-farm adjustments. The programs of this study would accelerate the adjustments but would compensate

persons making the change. Whether or not people accept such programs undoubtedly depends on (a) their own beliefs, values, and outlook, and (b) the level of compensation offered under the programs.

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APPENDIX A

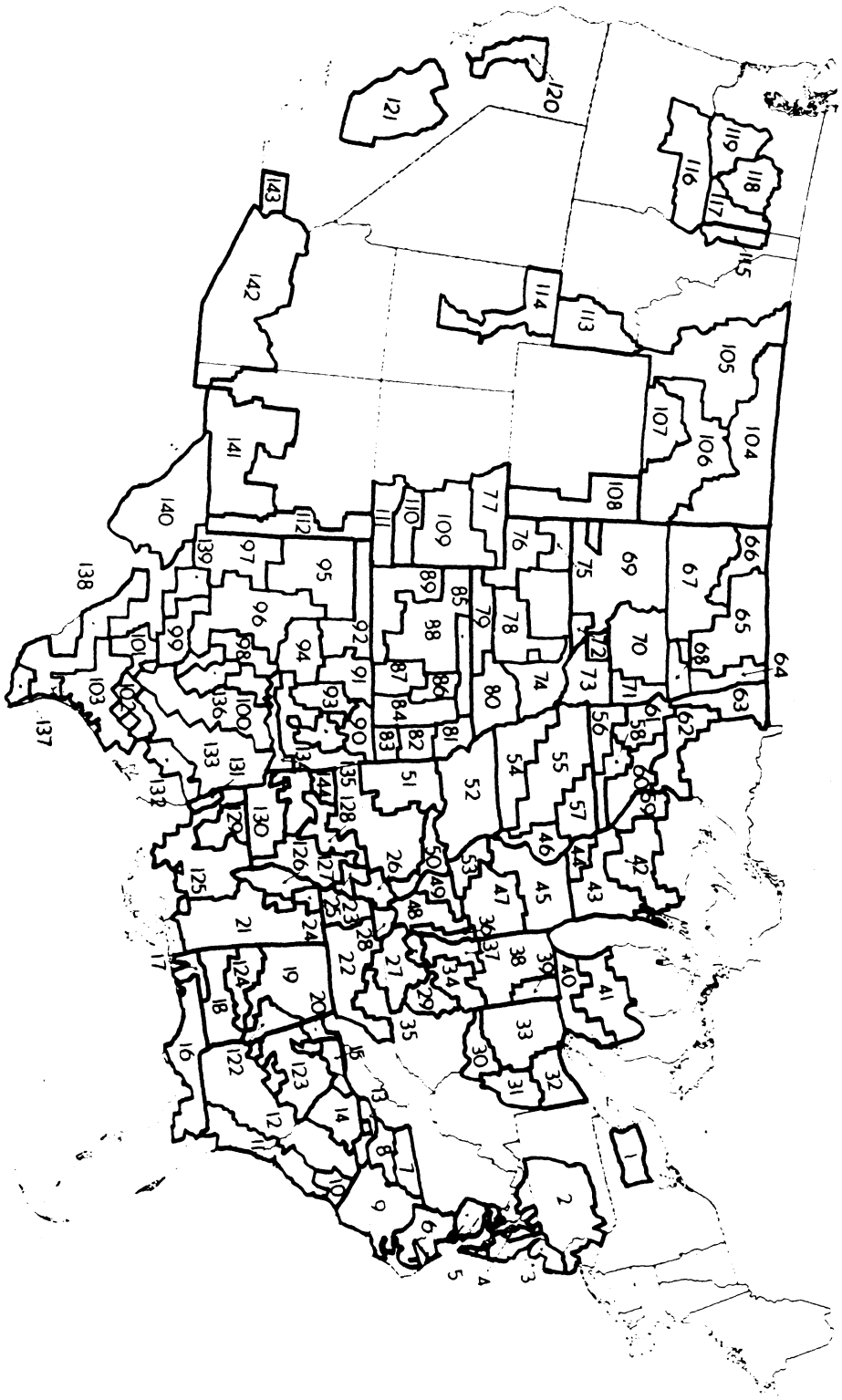

Figure A-1. Spatial location of producing regions

Table A-1. Estimated crop yields for 1965, by producint region

Region	Wheat	Corn	Oats	Barley	Grain sorghums	Soybeans	Cotton
			(bushels per acre)				(lbs/acre)
1	32.6	63.3	53.6	31.8	-	17.8	-
2	29.0	66.3	46.2	50.5	-	27.0	-
3	26.2	60.2	44.6	43.0	-	26.8	-
4	24.2	60.0	43.0	37.0	-	26.9	-
5	28.1	60.0	44.2	41.5	36.2	22.5	-
6	31.1	61.3	44.3	38.5	48.7	25.9	389.0
7	28.6	48.1	39.2	40.8	46.0	23.9	336.2
8	27.7	53.2	38.0	41.9	46.8	23.9	352.2
9	31.2	56.0	42.7	38.9	43.8	28.0	323.1
10	29.5	43.1	36.5	38.6	41.0	34.6	376.8
11	29.3	37.1	34.0	32.0	38.0	28.4	371.7
12	28.5	35.8	34.9	32.4	38.0	25.5	363.0
13	25.6	39.1	34.5	40.7	49.4	20.8	359.3
14	26.4	47.8	32.9	34.3	37.1	30.3	369.5
15	26.6	40.7	34.6	34.3	36.2	30.7	383.0
16	-	30.7	33.4	-	-	26.5	337.3
17	27.0	42.2	34.6	-	42.3	31.6	423.6
18	27.0	27.6	38.2	-	27.3	26.2	322.1
19	26.9	31.0	43.7	-	32.8	26.1	352.7
20	27.1	31.2	46.4	43.7	37.0	22.0	408.6
21	20.3	35.8	39.0	30.9	32.5	25.2	435.7
22	24.8	41.5	35.5	26.0	45.8	23.5	470.1
23	29.6	41.3	37.4	30.6	49.9	27.3	614.4
24	28.5	36.6	46.2	30.9	31.7	25.5	507.2
25	23.1	35.3	42.0	-	28.2	24.6	484.6
26	33.7	59.2	37.5	32.4	50.7	28.1	435.1
27	30.0	49.6	39.4	32.6	51.1	26.8	-
28	28.4	50.3	43.6	31.8	55.1	28.9	392.7
29	26.2	62.6	43.4	37.8	48.7	27.9	-
30	26.2	70.6	43.9	33.6	-	25.0	-
31	32.3	71.3	54.5	41.9	-	24.4	-
32	36.4	72.7	60.2	43.2	-	27.0	-
33	35.3	79.3	61.6	39.4	-	29.1	-
34	36.5	75.2	56.2	35.8	68.8	30.0	-
35	29.2	59.6	40.0	37.0	50.9	27.2	-

Table A-1. (Continued)

Region	Wheat	Corn	Oats	Barley	Grain sorghums	Soybeans	Cotton
			(bushels per acre)				(lbs/acre)
36	30.4	61.9	38.0	31.5	47.9	24.9	-
37	33.2	64.9	44.5	36.1	89.4	25.4	-
38	41.0	78.2	55.2	32.4	-	31.1	-
39	42.9	77.1	53.9	37.0	-	30.9	-
40	36.3	73.9	54.2	44.1	-	26.7	-
41	38.8	70.5	53.9	42.0	-	24.8	-
42	27.6	55.5	52.8	41.4	-	18.3	-
43	36.4	74.2	64.5	46.9	-	24.0	-
44	32.3	76.6	61.5	41.7	-	21.0	-
45	37.0	87.0	58.5	36.4	-	34.0	-
46	30.0	86.3	48.9	40.2	73.4	31.6	-
47	39.1	86.5	52.9	36.7	-	35.3	-
48	30.9	53.4	35.4	32.6	55.2	25.3	-
49	32.5	61.0	38.7	34.7	55.2	26.5	-
50	32.4	64.2	36.1	34.5	74.7	26.6	468.8
51	29.5	50.1	35.7	34.7	61.3	19.0	-
52	33.2	65.4	34.0	33.3	60.3	29.4	-
53	36.8	76.8	50.0	37.4	55.2	32.9	-
54	58.5	68.0	38.5	34.0	62.4	29.6	-
55	31.2	77.1	46.7	41.5	62.4	30.6	-
56	30.6	61.5	51.6	31.9	-	23.9	-
57	28.7	79.1	56.7	38.7	62.4	26.5	-
58	33.8	76.8	60.9	35.8	-	28.0	-
59	28.8	64.2	54.5	40.4	-	23.2	-
60	28.7	75.6	58.9	34.7	-	24.6	-
61	24.1	60.3	52.4	32.4	-	21.5	-
62	24.1	46.4	49.1	33.7	-	16.9	-
63	27.8	46.0	49.5	32.8	-	17.8	-
64	28.1	40.2	50.5	34.6	-	14.0	-
65	22.2	34.3	40.7	29.9	-	14.4	-
66	20.8	26.8	35.7	25.7	-	-	-
67	18.0	27.3	35.0	25.1	-	-	-
68	13.2	39.1	43.7	28.3	-	15.0	-
69	21.8	21.9	32.8	28.3	24.6	12.1	-
70	19.1	28.2	38.0	26.6	32.7	12.0	-

Table A-1. (Continued)

Region	Wheat	Corn	Oats	Barley	Grain Sorghums	Soybeans	Cotton
			(bushels per acre)				(lbs/acre)
71	20.7	40.7	45.3	33.8	48.6	16.2	-
72	25.0	29.0	35.2	26.9	35.8	12.7	-
73	21.6	49.8	42.7	32.7	54.1	20.9	-
74	25.8	56.6	37.6	33.8	86.5	28.5	-
75	27.1	35.1	33.7	28.2	31.4	-	-
76	28.8	53.8	33.6	31.0	36.0	-	-
77	28.6	80.2	39.1	38.5	20.9	-	-
78	23.9	58.3	31.7	26.6	77.9	32.8	-
79	26.1	45.4	27.5	28.2	56.7	28.8	-
80	26.2	58.2	34.3	32.9	85.0	27.5	-
81	36.1	56.1	32.5	38.7	65.1	27.6	-
82	38.9	38.5	32.8	40.1	54.1	23.7	-
83	35.4	47.7	29.2	34.0	50.6	21.5	-
84	36.9	50.5	30.7	36.2	52.7	22.8	-
85	28.3	40.5	24.0	28.7	45.7	23.9	-
86	28.3	41.6	24.1	33.1	46.3	22.6	-
87	26.1	39.8	22.2	29.2	40.9	20.9	-
88	27.8	39.7	23.7	31.2	39.0	23.4	-
89	24.3	81.9	17.0	27.3	37.2	30.1	-
90	34.0	37.2	28.5	33.0	36.7	16.4	-
91	30.2	31.2	30.7	33.1	34.9	16.3	-
92	24.0	24.1	25.0	10.2	27.7	-	-
93	29.0	35.1	28.1	29.6	35.5	22.5	-
94	27.8	32.2	28.5	25.1	38.2	23.9	345.6
95	25.4	56.7	21.8	27.5	67.9	33.0	674.6
96	20.6	19.1	25.5	20.1	24.9	-	319.4
97	22.1	30.8	28.1	25.1	33.9	23.6	521.7
98	19.6	19.3	24.2	20.2	26.0	31.4	221.5
99	17.9	18.7	29.5	19.3	32.4	-	237.3
100	26.1	28.2	28.7	26.3	43.9	16.9	297.2
101	22.4	22.8	28.2	23.0	42.6	-	328.8
102	16.6	38.2	27.1	30.0	41.0	-	363.8
103	17.1	30.4	29.9	17.7	51.8	-	467.8
104	22.1	43.9	34.6	27.6	-	-	-
105	25.2	63.4	35.6	26.7	-	-	-

Table A-1. (Continued)

Region	Wheat	Corn	Oats	Barley	Grain Sorghums	Soybeans	Cotton
			(bushels per acre)				(lbs/acre)
106	17.7	41.3	29.7	19.2	-	-	-
107	25.2	84.3	50.1	29.2	-	-	-
108	23.7	54.7	31.7	27.9	-	-	-
109	24.1	28.9	22.5	22.2	22.7	-	-
110	19.2	62.4	35.0	27.4	34.8	-	-
111	19.5	30.6	28.2	21.1	20.7	-	-
112	16.9	26.8	40.9	28.9	15.0	-	454.2
113	34.0	-	47.1	32.6	-	-	-
114	28.3	82.1	55.2	51.3	-	-	-
115	43.6	-	41.1	37.3	-	-	-
116	43.7	65.6	39.3	48.5	-	-	-
117	36.7	96.6	55.3	43.3	-	-	-
118	32.8	87.0	35.1	40.5	-	-	-
119	29.5	91.0	52.8	36.9	-	-	-
120	35.3	99.2	33.3	23.5	45.8	-	-
121	25.6	73.8	37.6	28.7	41.4	-	1,050.0
122	24.5	26.0	34.1	-	26.1	14.4	256.6
123	28.7	28.9	40.7	40.8	32.0	18.1	371.7
124	25.5	23.4	37.2	-	28.1	17.8	242.4
125	18.6	29.5	30.7	-	30.1	29.0	513.1
126	25.5	41.3	48.1	-	36.3	26.4	367.4
127	33.8	36.7	47.4	-	23.6	25.8	544.4
128	31.6	30.7	43.9	-	16.8	23.7	420.2
129	26.8	26.0	23.8	-	26.0	28.0	339.3
130	23.2	28.9	41.2	-	25.6	19.9	430.1
131	-	22.0	33.7	-	20.3	14.6	280.4
132	-	28.8	-	-	27.7	-	340.1
133	-	29.1	20.7	-	38.0	27.7	348.8
134	25.2	30.4	25.2	23.5	31.9	40.0	195.1
135	30.9	31.9	26.6	29.6	31.9	30.3	195.8
136	20.3	24.4	24.6	20.2	33.4	28.9	178.5
137	-	40.5	34.7	-	50.7	-	322.0
138	17.9	20.2	30.9	24.3	44.5	-	318.3
139	10.9	34.0	28.6	28.4	26.0	-	336.3
140	-	50.4	34.1	50.3	65.8	35.6	810.0

Table A-1. (Continued)[a]

Region	Wheat	Corn	Oats	Barley	Grain Sorghums	Soybeans	Cotton
			(bushels per acre)				(lbs/acre)
141	24.9	50.6	61.1	58.6	35.5	-	850.0
142	55.4	38.3	17.9	57.0	97.6	-	1,006.4
143	48.1	73.3	37.5	32.5	31.7	-	952.1
144	30.7	32.4	44.2	-	24.3	22.4	453.0

[a]Source: (19, Table 3, p. 76).

Table A-2. Regional prices of wheat, corn, oats, barley, grain, sorghum, soybeans, and cotton for 1965

Region	Wheat[a]	Corn	Oats	Barley	Grain sorghums	Soybeans	Cotton
		(dollars per bushel)					(dollars/cwt)
1	1.33	1.26	.77	1.05	-	2.27	-
2	1.34	1.26	.77	1.05	-	2.28	-
3	1.38	1.26	.77	1.05	-	2.29	-
4	1.38	1.26	.77	1.05	-	2.30	-
5	1.33	1.26	.77	1.05	1.03	2.30	-
6	1.32	1.26	.78	1.05	1.03	2.30	34.83
7	1.32	1.26	.78	1.05	1.03	2.30	34.89
8	1.32	1.26	.78	1.05	1.03	2.30	34.91
9	1.32	1.26	.78	1.05	1.03	2.30	34.85
10	1.30	1.26	.78	1.05	1.03	2.30	34.83
11	1.30	1.25	.78	1.04	1.03	2.29	34.83
12	1.30	1.24	.78	1.04	1.03	2.29	34.69
13	1.32	1.26	.78	1.05	1.03	2.30	34.91
14	1.30	1.26	.78	1.05	1.03	2.30	34.91
15	1.30	1.24	.78	1.04	1.03	2.29	34.63
16	-	1.24	.82	-	-	2.27	34.28
17	-	1.23	.78	-	1.00	2.30	34.18
18	-	1.23	.78	-	1.00	2.30	34.36
19	-	1.23	.78	-	1.00	2.30	34.42
20	1.30	1.24	.78	1.04	1.03	2.29	34.73
21	1.21	1.21	.77	-	1.00	2.31	34.13
22	1.26	1.19	.78	1.02	1.00	2.31	34.33
23	1.22	1.16	.78	1.02	1.00	2.32	34.13
24	1.21	1.21	.77	-	1.00	2.33	34.14
25	1.30	1.18	.75	1.04	1.07	2.33	34.08
26	1.29	1.15	.72	1.03	1.07	2.33	34.06
27	1.23	1.17	.78	.99	1.00	2.31	-
28	1.22	1.15	.78	.99	1.00	2.32	33.87
29	1.25	1.17	.78	.99	1.00	2.31	-
30	1.17	1.16	.74	.95	-	2.30	-
31	1.20	1.19	.76	.98	-	2.31	-
32	1.20	1.18	.74	.98	-	2.33	-
33	1.18	1.13	.71	.96	-	2.32	-
34	1.22	1.13	.71	.92	.94	2.31	-
35	1.22	1.15	.78	.99	1.00	2.32	-

Table A-2. (Continued)

Region	Wheat[a]	Corn	Oats	Barley	Grain Sorghums	Soybeans	Cotton
	(dollars per bushel)						(dollars/cwt)
36	1.21	1.13	.71	.98	.93	2.35	-
37	1.20	1.13	.70	.97	.94	2.32	-
38	1.23	1.11	.69	.98	-	2.33	-
39	1.19	1.11	.69	.97	-	2.32	-
40	1.19	1.12	.70	.97	-	2.29	-
41	1.16	1.13	.70	.95	-	2.27	-
42	1.25	1.11	.68	.95	-	2.27	-
43	1.27	1.11	.68	.98	-	2.31	-
44	1.25	1.09	.69	.97	-	2.31	-
45	1.26	1.11	.68	1.01	-	2.36	-
46	1.20	1.08	.68	.97	.93	2.32	-
47	1.24	1.11	.68	1.01	-	2.38	-
48	1.24	1.13	.71	.99	.93	2.34	-
49	1.27	1.12	.70	1.01	.93	2.35	-
50	1.24	1.13	.71	1.01	.99	2.30	33.87
51	1.20	1.13	.71	.98	.97	2.26	-
52	1.21	1.11	.70	.99	.99	2.29	-
53	1.24	1.11	.68	1.01	.93	2.36	-
54	1.20	1.05	.67	.97	.97	2.28	-
55	1.22	1.03	.66	.95	.93	2.28	-
56	1.29	.99	.62	.94	-	2.25	-
57	1.25	1.03	.67	.95	.90	2.29	-
58	1.31	1.02	.74	.97	-	2.26	-
59	1.30	1.08	.66	.97	-	2.27	-
60	1.31	1.03	.64	.98	-	2.26	-
61	1.31	.99	.61	.95	-	2.23	-
62	1.33	1.02	.62	.96	-	2.22	-
63	1.28	.99	.57	.91	-	2.19	-
64	1.25	.98	.57	.89	-	2.18	-
65	1.19	.98	.56	.87	-	2.17	-
66	1.11	.98	.53	.82	-	-	-
67	1.13	.99	.55	.83	-	-	-
68	1.28	.99	.58	.91	-	2.17	-
69	1.12	1.03	.59	.84	.86	2.18	-
70	1.23	.99	.58	.89	.87	2.18	-

Table A-2. (Continued)

Region	Wheat[a]	Corn	Oats	Barley	Grain Sorghums	Soybeans	Cotton
	(dollars per bushel)						(dollars/cwt)
71	1.28	.98	.60	.93	.89	2.20	-
72	1.18	.99	.60	.91	.89	2.19	-
73	1.21	.99	.61	.93	.93	2.21	-
74	1.20	1.03	.65	.97	.93	2.21	-
75	1.04	1.09	.65	.84	.86	-	-
76	1.06	1.09	.66	.86	.86	-	-
77	1.04	1.13	.70	.85	.86	-	-
78	1.16	1.05	.65	.93	.88	2.20	-
79	1.13	1.06	.68	.92	.88	2.20	-
80	1.21	1.05	.67	.98	.95	2.24	-
81	1.22	1.10	.70	1.00	.98	2.26	-
82	1.22	1.10	.70	.99	.97	2.25	-
83	1.20	1.13	.72	.98	.94	2.23	-
84	1.17	1.11	.71	.97	.93	2.23	-
85	1.14	1.08	.68	.95	.91	2.22	-
86	1.15	1.08	.70	.95	.92	2.23	-
87	1.14	1.12	.72	.94	.90	2.21	-
88	1.11	1.11	.70	.92	.88	2.20	-
89	1.09	1.13	.72	.89	.88	-	-
90	1.17	1.16	.74	.96	.93	2.23	-
91	1.13	1.16	.74	.93	.93	2.23	-
92	1.11	1.16	.74	.91	.93	-	-
93	1.13	1.16	.74	.93	.94	2.23	-
94	1.13	1.16	.74	.93	.94	-	33.87
95	1.12	1.18	.76	.96	.95	2.23	33.79
96	1.15	1.18	.76	.97	.95	-	33.85
97	1.13	1.18	.76	.97	.95	2.23	33.77
98	1.15	1.18	.76	.99	.97	2.23	33.87
99	1.13	1.18	.76	1.01	.94	-	33.85
100	1.09	1.18	.76	1.05	1.04	2.23	33.90
101	1.23	1.18	.76	1.04	1.07	-	33.87
102	1.30	1.18	.76	1.11	1.11	-	33.87
103	1.26	1.18	.76	1.08	1.12	-	33.86
104	1.01	1.12	.57	.76	-	-	-
105	.96	1.12	.60	.83	-	-	-

Table A-2. (Continued)

Region	Wheat[a]	Corn	Oats	Barley	Grain Sorghums	Soybeans	Cotton
	(dollars per bushel)						(dollars/cwt)
106	.99	1.12	.60	.78	-	-	-
107	.94	1.12	.61	.80	-	-	-
108	.99	1.12	.67	.81	-	-	-
109	1.04	1.13	.70	.86	.86	-	-
110	1.04	1.15	.70	.86	.86	-	-
111	1.02	1.15	.70	.85	.86	-	-
112	1.09	1.21	.77	.95	.95	-	33.75
113	.98	-	.67	.96	-	-	-
114	.99	1.24	.77	.94	-	-	-
115	1.00	-	.68	.99	-	-	-
116	1.14	-	.70	1.01	-	-	-
117	1.17	1.21	.72	1.04	-	-	-
118	1.15	1.19	.71	1.03	-	-	-
119	1.19	1.19	.73	1.05	-	-	-
120	1.27	1.24	.77	1.07	1.20	-	-
121	1.24	1.24	.78	1.05	1.18	-	33.10
122	1.27	1.23	.78	-	1.00	2.30	34.62
123	1.30	1.24	.78	1.04	1.03	2.29	34.77
124	1.27	1.23	.78	-	1.00	2.30	34.33
125	1.20	1.21	.77	-	1.00	2.31	34.03
126	1.21	1.21	.77	-	1.00	2.34	34.09
127	1.29	1.18	.75	-	1.06	2.33	34.09
128	1.23	1.18	.75	-	1.02	2.31	34.04
129	1.19	1.21	.77	-	1.00	2.31	33.96
130	1.21	1.18	.75	-	.97	2.31	33.97
131	-	1.21	.77	-	1.00	2.31	33.95
132	-	1.18	-	-	1.11	-	33.91
133	-	1.18	.76	-	1.04	2.23	33.92
134	1.13	1.16	.74	.93	.94	2.23	33.92
135	1.13	1.16	.74	.93	.94	2.23	33.95
136	1.20	1.18	.76	1.03	1.02	-	33.87
137	-	1.18	.76	-	1.07	-	33.79
138	1.14	1.18	.76	.99	1.07	-	33.87
139	1.12	1.18	.76	.92	.94	-	33.87
140	-	1.18	.76	.88	.94	2.23	33.70

Table A-2. (Continued)

Region	Wheat[a]	Corn	Oats	Barley	Grain Sorghums	Soybeans	Cotton
	(dollars per bushel)						(dollars/cwt)
141	1.03	1.21	.77	.88	.94	-	33.65
142	1.12	1.24	.83	.96	1.06	-	33.23
143	1.25	1.24	.79	1.06	.74	-	33.10
144	1.09	1.18	.75	-	.94	2.31	33.95

[a]Wheat prices are those for feed wheat.

Table A-3. Estimated 1965 variable production costs by producing region

Region	Wheat	Corn	Oats	Barley	Sorghum	Soybeans	Cotton
				(dollars)			
1	21.07	23.97	23.54	21.12	-	24.96	-
2	19.43	21.56	16.76	12.56	-	23.84	-
3	18.96	17.39	14.33	17.32	-	16.50	-
4	18.77	17.19	14.76	15.32	-	16.53	-
5	18.62	24.36	18.71	18.93	19.73	15.43	-
6	18.62	32.77	15.93	17.37	24.93	18.09	71.20
7	20.64	22.95	20.50	22.53	17.16	19.69	85.50
8	22.68	26.61	19.41	22.81	23.97	19.47	76.81
9	21.47	24.89	18.74	21.15	20.64	16.81	72.00
10	19.14	20.88	17.14	18.41	19.72	16.10	74.98
11	17.42	22.73	15.36	17.15	14.06	14.79	76.24
12	20.50	23.31	17.69	18.07	16.30	16.28	66.94
13	17.24	17.13	14.74	16.90	13.89	14.63	63.69
14	17.41	16.50	15.53	16.96	13.39	17.56	64.07
15	17.69	20.09	15.65	17.62	14.89	12.02	71.52
16	-	15.84	16.03	-	-	19.83	30.01
17	-	19.40	18.95	-	16.35	12.88	52.64
18	-	18.21	15.92	-	15.63	13.30	56.75
19	-	14.95	19.62	-	12.24	16.05	56.51
20	16.51	16.01	20.54	16.73	23.82	20.42	64.05
21	14.47	17.32	15.92	-	14.47	14.15	61.46
22	15.31	14.20	12.85	13.53	10.20	18.78	65.80
23	16.49	12.91	12.53	12.89	9.59	9.26	71.40
24	17.72	18.17	17.57	-	16.75	11.73	61.49
25	18.11	14.97	11.86	10.34	9.58	8.58	62.85
26	16.30	13.14	10.93	10.44	5.73	6.37	48.77
27	15.87	19.72	14.56	13.78	12.61	9.29	-
28	15.64	16.73	13.22	14.11	11.57	12.72	65.82
29	15.93	20.88	13.33	13.69	14.93	15.53	-
30	18.23	19.07	16.69	15.83	-	12.57	-
31	21.30	22.72	19.68	18.18	-	12.68	-
32	21.14	22.04	20.74	19.89	-	11.39	-
33	18.29	19.19	16.29	15.82	-	10.11	-
34	19.81	17.40	17.38	13.48	17.46	11.00	-
35	18.94	8.74	15.40	13.03	10.94	10.64	-

Table A-3. (Continued)

Region	Wheat	Corn	Oats	Barley	Sorghum	Soybeans	Cotton
				(dollars)			
36	17.38	16.83	12.78	9.18	13.91	9.74	-
37	15.74	15.28	13.23	10.72	12.70	8.99	-
38	18.58	18.39	16.06	12.24	-	11.17	-
39	16.45	17.15	14.13	11.04	-	9.30	-
40	17.82	16.70	15.71	14.79	-	11.78	-
41	18.95	16.25	18.75	15.73	-	15.73	-
42	13.89	16.49	13.15	11.51	-	17.69	-
43	13.94	16.31	11.76	11.74	-	15.95	-
44	12.94	12.50	9.72	9.71	-	8.83	-
45	16.51	14.99	12.18	10.18	-	9.49	-
46	14.18	14.90	10.68	12.07	13.05	8.93	-
47	16.39	13.22	9.99	9.71	-	7.41	-
48	17.10	13.66	9.00	8.17	11.26	8.38	-
49	14.45	14.16	8.84	8.15	9.98	8.27	-
50	13.15	12.99	10.04	12.77	11.28	6.11	49.38
51	15.18	13.18	8.79	11.46	12.14	6.69	-
52	12.35	11.43	9.29	14.30	11.24	6.12	-
53	17.41	15.62	12.69	15.34	19.50	9.28	-
54	9.77	12.26	7.49	9.47	10.59	7.79	-
55	9.01	11.18	5.74	7.07	11.37	7.18	-
56	9.97	9.79	6.13	6.32	-	7.33	-
57	9.99	13.23	6.86	7.29	8.19	8.08	-
58	10.74	12.31	7.32	6.52	-	7.77	-
59	10.78	11.74	9.66	9.35	-	8.42	-
60	13.14	12.61	10.77	10.43	-	7.73	-
61	11.43	9.17	4.74	7.52	-	6.87	-
62	9.35	11.55	7.97	6.98	-	7.64	-
63	5.01	8.16	5.08	3.71	-	13.79	-
64	4.20	7.54	7.75	6.28	-	12.80	-
65	2.37	5.93	3.80	3.81	-	9.23	-
66	2.84	5.85	3.65	3.81	-	-	-
67	2.79	5.31	4.08	4.13	-	-	-
68	3.55	6.05	4.46	4.54	-	6.29	-
69	2.64	4.53	3.97	4.27	3.06	2.35	-
70	3.93	4.86	3.94	4.53	2.78	3.05	-

Table A-3. (Continued)

Region	Wheat	Corn	Oats	Barley	Sorghum	Soybeans	Cotton
				(dollars)			
71	4.70	7.25	6.57	7.22	2.71	6.33	-
72	3.21	4.94	4.44	4.97	2.55	3.68	-
73	5.05	7.10	4.56	6.59	5.71	4.90	-
74	5.02	8.27	4.00	3.50	7.35	4.98	-
75	3.29	8.03	5.53	4.19	10.06	-	-
76	3.45	13.97	6.63	6.52	10.48	-	-
77	3.06	13.05	4.38	4.36	6.56	-	-
78	5.86	12.41	6.20	5.54	8.36	8.64	-
79	2.87	11.46	5.99	4.59	10.76	5.75	-
80	6.10	12.10	5.53	4.16	9.32	6.24	-
81	12.71	10.17	7.65	5.83	6.03	7.62	-
82	14.34	11.34	8.53	6.67	9.15	7.32	-
83	14.27	12.59	8.56	8.20	8.55	7.07	-
84	11.53	9.70	7.08	7.19	8.54	4.12	-
85	4.09	8.40	7.78	5.70	8.28	3.73	-
86	7.13	9.06	7.47	5.47	6.19	3.02	-
87	5.89	10.04	6.55	5.22	5.49	4.96	-
88	2.94	5.31	5.12	3.98	6.15	3.18	-
89	1.52	9.18	3.06	2.81	5.45	-	-
90	7.26	11.08	7.73	6.19	9.35	10.42	-
91	5.37	11.13	4.97	3.99	8.79	7.98	-
92	2.24	6.01	3.99	2.64	4.80	-	22.83
93	4.94	9.78	5.66	4.61	8.87	8.95	26.85
94	7.21	8.21	6.75	5.35	8.69	-	24.84
95	2.92	14.12	2.62	2.83	15.09	13.20	48.43
96	5.76	4.63	5.38	6.15	8.22	-	24.36
97	5.24	9.90	4.65	5.52	10.23	10.42	32.77
98	6.93	5.20	5.62	6.68	8.44	7.63	23.90
99	4.15	3.77	5.00	5.82	8.03	-	32.55
100	3.96	5.51	6.55	10.22	8.80	8.69	30.30
101	3.33	5.91	6.26	6.82	11.50	-	38.89
102	4.30	6.47	7.68	8.46	8.85	-	34.46
103	2.98	5.56	6.11	6.76	7.91	-	40.08
104	2.18	20.89	3.56	3.99	-	-	-
105	2.23	29.07	5.65	5.11	-	-	-

Table A-3. (Continued)

Region	Wheat	Corn	Oats	Barley	Sorghum	Soybeans	Cotton
				(dollars)			
106	3.06	33.08	4.84	4.94	-	-	-
107	3.78	35.65	8.09	7.98	-	-	-
108	4.57	21.74	8.13	8.66	-	-	-
109	2.50	7.41	3.32	2.99	5.26	-	-
110	3.80	15.86	3.33	3.08	8.96	-	-
111	2.05	8.34	3.30	3.39	5.13	-	-
112	3.38	15.62	10.77	10.52	13.72	-	75.41
113	5.26	-	11.57	8.99	-	-	-
114	4.35	25.52	13.96	12.84	-	-	-
115	5.14	-	9.71	8.73	-	-	-
116	4.82	-	6.21	9.09	-	-	-
117	4.30	14.27	7.13	7.15	-	-	-
118	3.45	29.39	5.62	8.09	-	-	-
119	3.92	33.31	10.32	11.42	-	-	-
120	4.50	35.94	4.39	6.15	24.73	-	-
121	4.45	27.54	4.40	10.13	11.73	-	92.65
122	16.44	19.56	17.34	-	11.85	20.46	66.31
123	18.85	18.36	16.02	15.76	16.70	18.42	73.05
124	12.69	15.39	14.03	-	11.46	19.71	55.93
125	12.99	17.30	16.68	-	17.57	18.24	81.74
126	13.35	18.92	13.81	-	14.25	12.15	66.18
127	13.72	16.62	8.71	-	14.32	12.54	68.39
128	14.54	19.72	10.20	-	14.99	12.16	70.24
129	23.09	28.67	20.26	-	19.79	24.36	64.43
130	18.94	19.10	12.76	-	13.94	20.70	54.88
131	-	19.50	12.21	-	14.37	15.27	43.35
132	-	8.86	-	-	10.88	-	47.04
133	-	11.27	6.35	-	10.86	11.02	37.54
134	4.33	5.97	3.76	5.69	5.20	7.35	27.34
135	6.74	14.59	7.89	6.30	10.67	9.55	27.41
136	7.96	9.89	7.13	7.76	10.79	-	25.68
137	-	13.05	8.53	-	13.70	-	51.44
138	5.39	4.36	4.20	6.23	9.93	-	41.02
139	4.14	4.19	5.05	6.29	7.69	-	29.53
140	-	14.15	11.93	15.16	19.51	12.56	108.25
141	23.88	23.31	16.39	15.06	24.32	-	133.57
142	20.81	28.92	14.25	12.93	17.68	-	124.27
143	13.71	32.75	7.79	11.26	18.92	-	115.48
144	17.01	23.79	12.24	-	2-.26	9.65	60.34

Table A-4. Regional payment rates per acre for retiring land by type of land retired

Region	Wheat	Corn	Oats	Barley	Grain Sorghum	Soybeans	Cotton
				(dollars)			
1	22.29	55.79	17.73	12.27	-	15.45	-
2	19.43	61.98	18.81	40.47	-	37.73	-
3	17.20	58.46	20.01	27.83	-	44.87	-
4	14.63	58.41	18.35	23.53	-	45.34	-
5	18.82	51.24	15.32	24.61	17.56	36.32	-
6	22.43	44.47	18.62	23.06	25.23	41.48	64.29
7	17.11	37.66	10.08	20.31	30.22	35.28	31.80
8	13.88	40.42	10.23	21.19	24.23	35.50	46.14
9	19.71	45.67	14.57	19.70	24.47	47.59	40.60
10	19.40	33.43	11.33	22.12	22.51	63.48	56.26
11	20.67	23.65	11.16	16.13	25.08	50.25	53.22
12	16.55	21.08	9.53	15.63	22.84	42.12	58.98
13	16.55	34.54	12.17	25.84	36.99	33.21	61.74
14	16.91	43.73	10.13	19.06	24.82	52.13	64.92
15	16.89	30.38	11.34	18.05	22.40	58.28	61.11
16	-	22.23	11.36	-	-	40.33	75.22
17	-	32.51	8.04	-	25.95	59.80	92.15
18	-	15.74	13.88	-	11.67	46.96	53.92
19	-	23.18	14.47	-	20.56	43.98	65.01
20	18.72	22.68	15.65	28.72	14.29	29.96	77.86
21	11.20[a]	26.00	14.11	-	18.03	44.06	87.24
22	15.94	35.19	14.84	12.99	35.60	35.51	95.59
23	19.62	35.00	16.64	18.32	40.31	54.08	138.29
24	16.77	26.12	18.00	-	14.95	47.69	111.67
25	11.92	26.68	19.64	-	20.59	48.74	102.30
26	27.17	54.94	16.07	22.93	48.52	59.10	99.43
27	21.03	38.31	16.17	18.49	38.49	52.62	-
28	19.01	41.12	20.79	17.37	43.53	54.33	67.19
29	16.82	52.36	20.52	23.73	33.77	48.92	-
30	15.20	62.83	15.80	16.09	-	44.93	-
31	17.46	62.13	21.74	22.88	-	43.68	-
32	22.54	63.75	23.81	22.45	-	51.52	-
33	23.36	70.42	27.45	22.00	-	57.40	-
34	24.72	67.58	22.52	19.46	47.21	58.30	-
35	16.68	59.80	15.80	23.60	39.96	52.46	-

Table A-4. (Continued)

Region	Wheat	Corn	Oats	Barley	Grain Sorghum	Soybeans	Cotton
				(dollars)			
36	19.40	53.12	14.20	21.69	30.64	48.78	-
37	24.10	58.06	17.92	24.30	71.34	49.94	-
38	31.85	68.41	22.03	19.51	-	61.29	-
39	34.60	68.43	23.06	24.85	-	62.39	-
40	25.38	66.07	22.23	27.99	-	49.36	-
41	26.06	63.42	18.98	24.17	-	40.57	-
42	20.61	45.12	22.75	27.82	-	23.85	-
43	32.29	66.05	32.10	34.12	-	39.49	-
44	27.44	70.99	32.72	30.74	-	39.68	-
45	30.11	81.58	27.60	26.58	-	70.75	-
46	21.89	78.30	22.57	26.92	55.21	64.38	-
47	32.58	82.80	25.98	27.36	-	76.60	-
48	21.22	46.68	16.13	24.10	40.08	50.82	-
49	26.83	54.16	18.25	26.90	41.36	54.01	-
50	27.03	59.56	15.59	22.08	62.67	55.07	109.40
51	20.22	43.43	16.56	22.55	47.32	36.25	-
52	27.82	61.16	14.51	18.67	48.46	61.21	-
53	28.89	69.93	21.31	22.43	31.84	68.36	-
54	60.43	59.14	18.31	23.51	49.94	59.70	-
55	29.05	68.23	25.08	32.36	46.66	62.59	-
56	29.50	51.10	25.86	23.67	47.97	46.45	-
57	25.89	68.24	31.13	29.48	-	52.51	-
58	33.54	66.03	37.75	28.21	-	55.55	-
59	26.66	57.60	26.31	29.84	-	44.24	-
60	24.46	65.26	26.93	23.58	-	47.87	-
61	20.14	50.53	27.22	23.26	-	41.08	-
62	22.70	35.78	22.47	25.37	-	29.88	-
63	31.57	37.38	23.14	26.14	-	25.19	-
64	30.93	31.86	21.04	24.51	-	17.72	-
65	24.05	27.68	18.99	22.14	-	22.02	-
66	20.25	20.41	15.27	17.26	-	-	-
67	17.55	21.72	15.17	16.70	-	-	-
68	13.35	32.66	20.89	21.21	-	26.26	-
69	21.78	18.03	15.38	19.50	18.10	24.03	-
70	19.56	23.06	18.10	19.14	25.67	23.11	-

Table A-4. (Continued)

Region	Wheat	Corn	Oats	Barley	Grain Sorghum	Soybeans	Cotton
				(dollars)			
71	21.80	32.64	20.61	24.21	41.52	29.31	-
72	26.29	23.77	16.68	19.51	29.31	24.13	-
73	21.09	42.20	21.49	23.82	44.60	41.29	-
74	25.94	50.03	20.44	29.29	74.83	58.58	-
75	24.89	30.23	16.38	19.50	16.94	-	-
76	27.08	43.41	15.55	20.14	20.48	-	-
77	26.68	77.58	22.99	28.37	11.41	-	-
78	21.86	48.81	14.41	16.54	60.19	63.52	-
79	26.62	36.66	12.71	21.35	39.14	57.61	-
80	25.70	49.01	17.45	28.08	71.43	55.36	-
81	31.33	51.54	15.10	32.87	57.77	54.76	-
82	33.12	31.40	14.43	34.75	43.33	46.01	-
83	28.21	41.31	12.46	23.20	39.01	40.88	-
84	31.64	46.36	14.72	27.92	40.47	46.72	-
85	28.17	35.34	8.54	21.57	33.31	49.33	-
86	25.42	35.87	9.40	25.98	36.41	47.38	-
87	23.86	34.54	9.43	22.23	31.32	41.23	-
88	27.92	38.76	11.47	24.72	28.17	48.30	-
89	24.97	83.37	9.18	21.49	27.29	-	-
90	32.52	32.07	13.36	25.49	24.78	26.15	-
91	28.76	15.70	17.75	26.79	23.67	28.37	-
92	24.40	14.72	14.51	6.64	20.96	-	-
93	27.83	20.41	15.13	22.92	24.50	41.23	-
94	24.20	19.48	14.34	17.99	27.22	-	92.21
95	25.53	35.78	13.95	23.57	49.41	60.39	179.52
96	17.93	18.79	14.00	13.35	15.44	-	83.76
97	19.73	17.20	16.71	18.83	21.98	42.21	143.41
98	15.61	11.78	12.77	13.32	16.78	62.39	51.12
99	16.08	12.69	17.42	13.67	22.43	-	47.78
100	24.49	19.31	15.26	17.40	36.86	29.00	70.45
101	24.22	14.15	15.17	17.40	34.08	-	72.47
102	17.28	27.15	12.92	24.84	36.66	-	88.76
103	18.57	21.19	16.61	12.36	50.11	-	118.32
104	20.14	15.11	16.16	16.00	-	-	-
105	21.96	22.92	15.71	17.05	-	-	-

Table A-4. (Continued)

Region	Wheat	Corn	Oats	Barley	Grain Sorghum	Soybeans	Cotton
				(dollars)			
106	14.46	.79	12.98	10.04	-	-	-
107	19.91	33.49	22.47	15.38	-	-	-
108	18.89	23.11	13.11	13.94	-	-	-
109	22.56	16.58	12.43	16.10	14.26	-	-
110	16.17	37.18	21.17	20.48	20.97	-	-
111	18.34	17.67	16.44	14.55	12.67	-	-
112	15.04	8.77[b]	17.86	16.94	.53	-	77.88
113	28.06	-	19.99	22.31	-	-	-
114	23.67	51.65	28.54	35.38	-	-	-
115	38.46	-	18.24	28.20	-	-	-
116	45.00	-	21.30	39.90	-	-	-
117	38.64	73.62	32.69	37.88	-	-	-
118	34.27	48.04	19.30	33.63	-	-	-
119	31.19	47.68	28.22	27.33	-	-	-
120	40.33	57.31	21.25	19.00	30.23	-	-
121	27.29	41.83	24.93	20.01	37.12	-	254.90
122	14.68	4.62	9.26	-	11.91	12.66	22.52
123	18.46	8.81	15.73	26.67	18.60	23.03	56.19
124	19.70	6.37	14.99	-	16.64	21.23	29.29
125	11.20[a]	9.55	6.96	-	12.53	48.75	92.87
126	17.51	18.66	23.23	-	22.05	49.63	59.07
127	29.88	15.68	17.08	-	10.70	47.57	117.09
128	24.33	7.30	22.73	-	2.15	42.59	72.80
129	10.80[a]	-3.19[b]	-1.93	-	6.21	40.32	50.80
130	11.20[a]	6.33	18.14	-	10.89	25.27	91.22
131	-	.52[b]	13.74	-	6.13	18.46	49.85
132	-	16.48	-	-	19.87	-	68.29
133	-	14.34	15.22	-	28.66	50.75	80.77
134	24.15	20.17	14.89	16.17	24.79	81.85	38.86
135	28.18	12.84	11.79	21.23	19.32	58.02	39.06
136	16.40	18.90	11.57	13.05	23.28	-	34.78
137	-	34.74	17.84	-	40.55	-	124.94
138	15.02	19.48	19.28	17.83	37.69	-	67.06
139	9.60[a]	36.93	16.69	19.84	16.75	-	84.37
140	-	45.32	13.99	29.10	42.34	66.83	164.72

Table A-4. (Continued)

Region	Wheat	Corn	Oats	Barley	Grain Sorghum	Soybeans	Cotton
				(dollars)			
141	6.40[a]	37.92	30.66	36.51	9.05	-	152.46
142	41.24	18.57	.61	41.79	84.78	-	210.16
143	46.42	58.14	21.84	23.19	4.54	-	199.67
144	16.45	14.44	20.91	-	2.58	42.09	93.76

[a]Minimum regional payment rate.
[b]The minimum regional payment rate was used for feed grains in this region.

Table A-5. Minimum regional diversion rates per acre for all crops by producing region

Region	Dollars per acre	Region	Dollars per acre
1	12.00	36	15.20
2	11.60	37	15.20
3	13.44	38	15.20
4	13.60	39	15.20
5	12.80	40	12.00
6	12.80	41	12.00
7	12.80	42	12.00
8	12.80	43	12.00
9	12.80	44	12.00
10	10.80	45	15.20
11	10.40	46	15.20
12	10.00	47	15.20
13	12.80	48	15.20
14	10.80	49	15.20
15	10.24	50	11.20
16	9.60	51	11.20
17	9.60	52	11.20
18	9.60	53	15.20
19	9.60	54	15.20
20	9.60	55	15.20
21	11.20	56	11.60
22	11.20	57	15.20
23	11.20	58	11.60
24	11.20	59	12.00
25	10.80	60	11.60
26	11.20	61	11.60
27	11.84	62	11.60
28	12.00	63	11.60
29	12.00	64	8.40
30	15.20	65	8.40
31	15.20	66	8.40
32	15.20	67	8.40
33	15.20	68	8.40
34	15.20	69	8.80
35	12.00	70	8.80

Table A-5. (Continued)

Region	Dollars per acre	Region	Dollars per acre
71	8.80	110	7.20
72	8.80		
73	8.80	111	7.20
74	10.00	112	6.40
75	10.00	113	11.60
		114	9.60
76	10.00	115	11.60
77	7.20		
78	10.00	116	12.80
79	10.00	117	12.80
80	10.00	118	12.80
		119	12.80
81	10.00	120	12.80
82	10.00		
83	10.00	121	12.80
84	10.00	122	9.60
85	10.00	123	9.60
86	10.00	125	11.20
87	10.00		
88	10.00	126	11.20
89	10.00	127	10.80
90	9.60	128	10.80
		129	10.80
91	9.60	130	11.20
92	9.60		
93	9.60	131	11.20
94	9.60	132	9.60
95	9.60	133	9.60
		134	9.60
96	9.60	135	9.60
97	9.60		
98	9.60	136	9.60
99	9.60	137	9.60
100	9.60	138	9.60
		139	9.60
101	9.60	140	9.60
102	9.60		
103	9.60	141	6.40
104	8.00	142	8.00
105	8.00	143	12.80
		144	8.00
106	8.00		
107	8.00		
108	6.96		
109	7.20		